

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 CAMRY SOLARA (Convertible).

Applicable models: MCV31L - GKANKA
MCV31L - GKAGKA

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

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

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

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

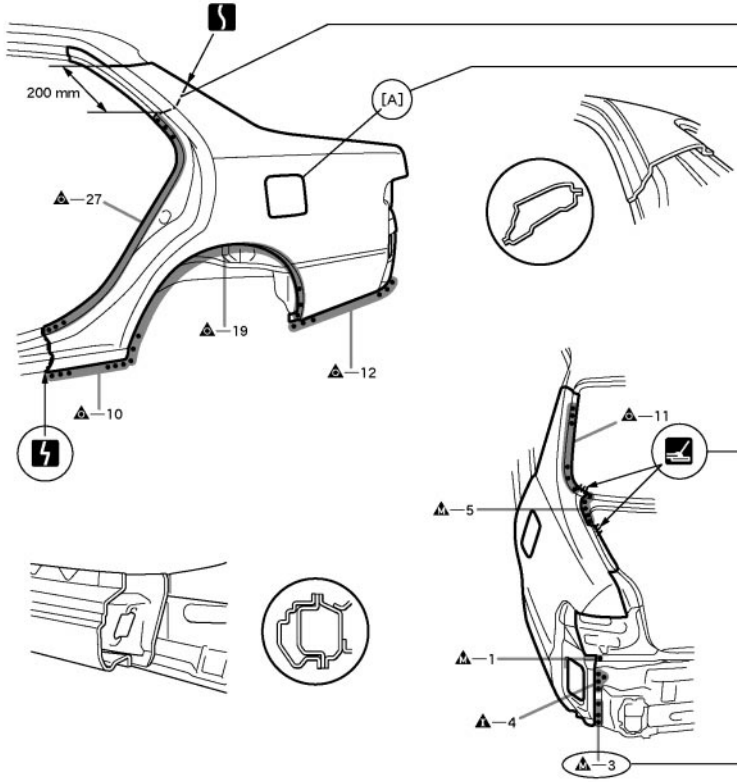
If you require the above manuals, please contact your TOYOTA Dealer.

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

TOYOTA MOTOR CORPORATION

HOW TO USE THIS MANUAL

1. BODY PANEL REPLACEMENT THIS MANUAL

BP-34		BODY PANEL REPLACEMENT	
(A)	QUARTER PANEL (CUT)		(C)
(B)	REPLACEMENT		
(D)	REMOVAL		
(E)	POINT 1. Remove the [A] at the same time. PART NAME [A] Fuel filler opening lid 200 mm (7.87 in.)		

(A) : 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

(B) : REMOVAL CONDITIONS

(C) : PART LOCATION

(D) : REMOVAL DIAGRAM
 Describes in detail removal of the damaged part involving repair by cutting.

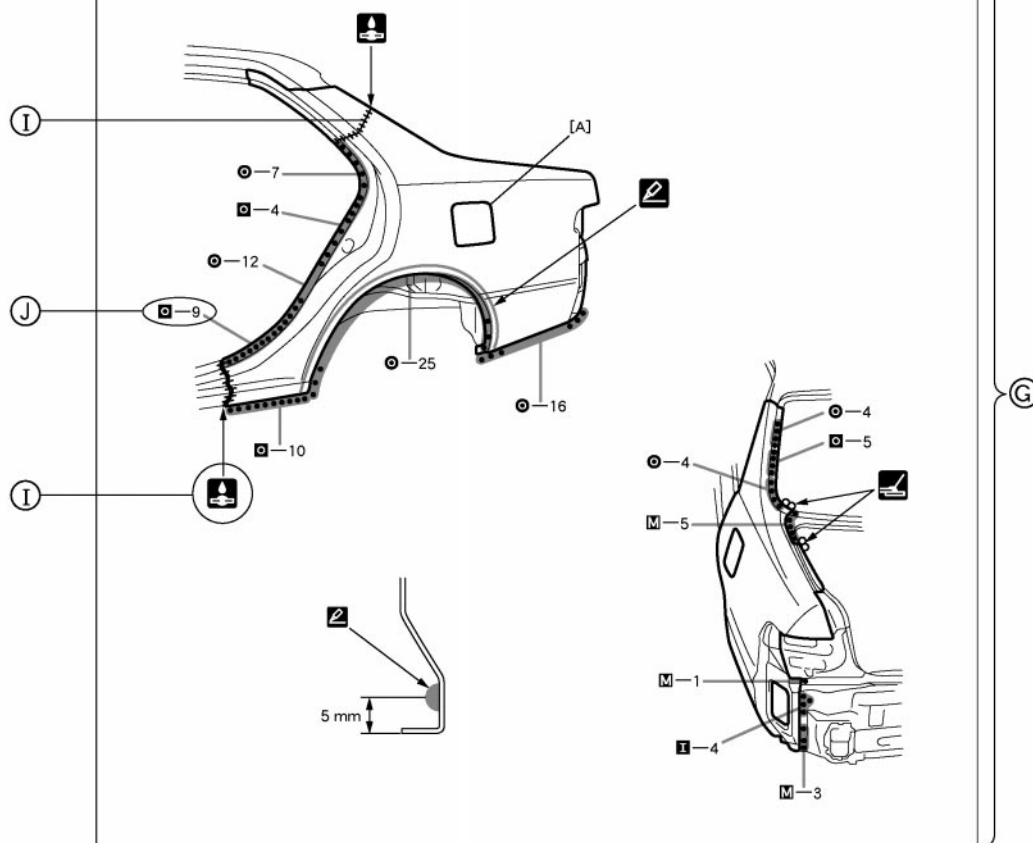
(E) : REMOVAL GUIDE
 Provides additional information to more efficiently help you perform the removal.

BODY PANEL REPLACEMENT

BP-35

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam with corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



POINT

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

HINT

- 1) Apply body sealer about 5mm(0.20 in.) front the flange, avoiding any oozing.
- 2) Apply sealer evenly, about 3-4mm(0.12-0.16 in.) in diameter
- 3) For other sealing points, refer to section PC.

PART NAME

[A] Fuel filler opening lid

(F) : INSTALLATION CONDITIONS

(G) : INSTALLATION DIAGRAM

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

(H) : INSTALLATION GUIDE

Provides additional information to more efficiently help you perform the installation.

(I) : SYMBOLS

(See page IN-7)

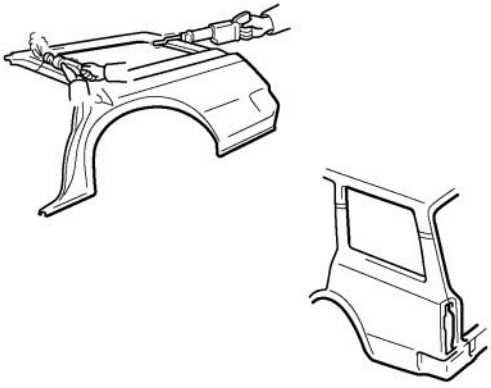
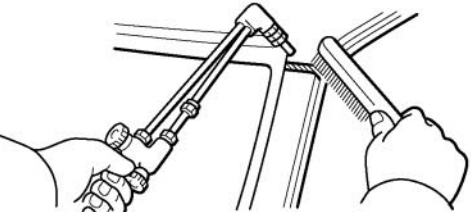
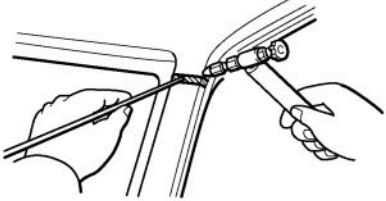
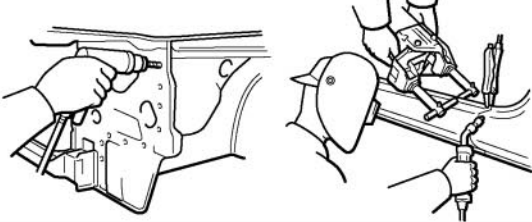
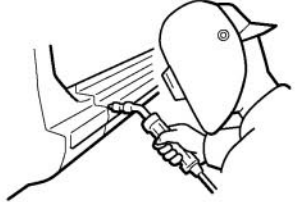
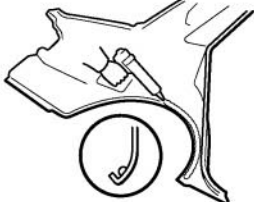
(J) : INSTALLATION OF WELD POINTS

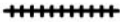
Weld method and panel position symbols (See page IN-9)

(K) : PART NAME

2. SYMBOLS

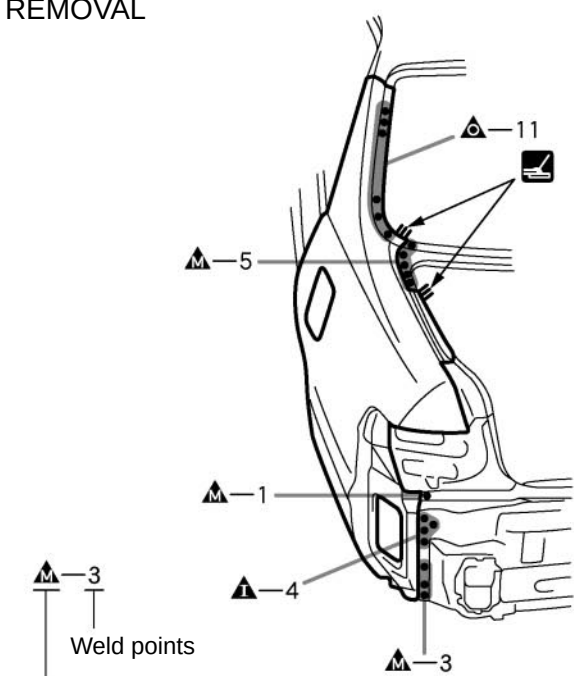
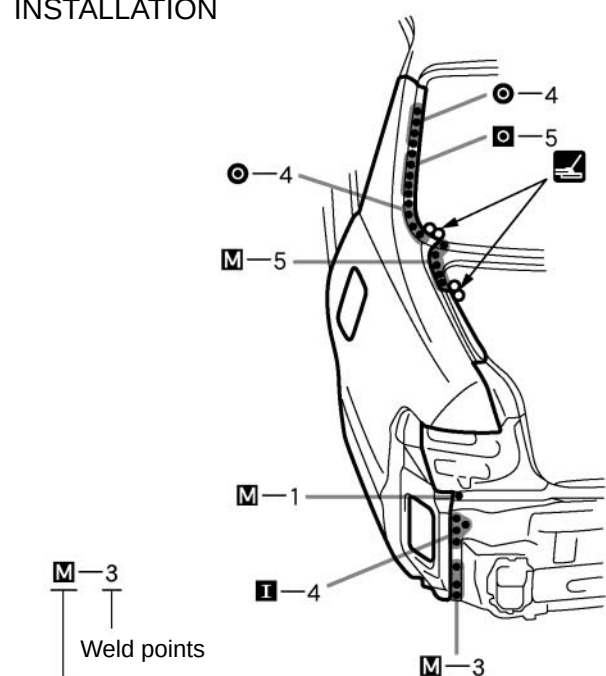
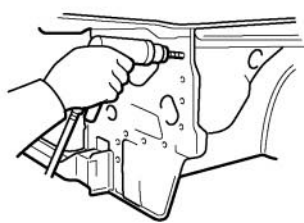
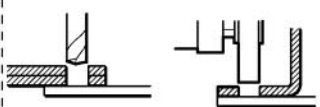
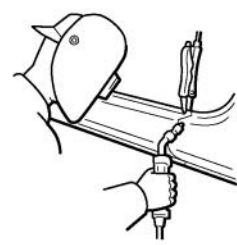
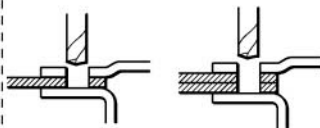
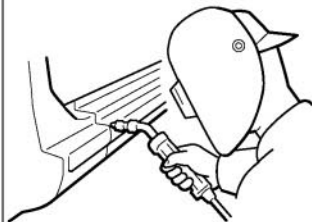
The following symbols are used in the welding diagrams in section BP of this manual to indicate cutting areas and the types of weld required.

SYMBOLS		MEANING	ILLUSTRATION
-----		CUT AND JOIN LOCATION (SAW CUT)	
		CUT AND JOIN LOCATION (Cut Location for Supply Parts)	
		CUT LOCATION	
		CUT WITH DISC SANDER, ETC.	
////		BRAZE (Removal)	
oooo		BRAZE (Installation)	
●●●●●	—	WELD POINTS	
        	—	SPOT WELD OR MIG PLUG WELD (See Page IN-9)	
++++		CONTINUOUS MIG WELD (BUTT WELD)	
		CONTINUOUS MIG WELD (TACK WELD)	
		BODY SEALER	

SYMBOLS		MEANING	ILLUSTRATION
—		Assembly Mark	—
	—	BODY SEALER (Flat Finishing)	
—	—	BODY SEALER (No flat Finishing)	

3. ILLUSTRATION OF WELD POINT SYMBOLS

EXAMPLE:

REMOVAL			INSTALLATION		
 Remove weld point and panel position			 Weld method and panel position		
SYMBOLS	MEANING	ILLUSTRATION	SYMBOLS	MEANING	ILLUSTRATION
  	Remove Weld Points		  	Spot Weld	
	(Outside)		  	MIG Plug Weld	
	(Middle)		 Spot MIG Weld 		
	(Inside)				
<i>HINT: Panel position symbols are as seen from the working posture.</i>					

ABBREVIATIONS USED IN THIS MANUAL

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

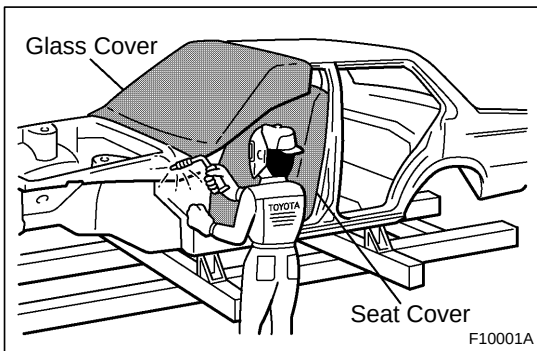
ABS	Antilock Brake System
A/C	Air Conditioner
assy	assembly
ECT	Electronic Controlled Transmission
ECU	Electronic Control Unit
e.g.	Exempli Gratia (for Example)
Ex.	Except
FWD	Front Wheel Drive Vehicles
2WD	Two Wheel Drive Vehicles
4WD	Four Wheel Drive Vehicles
in.	inch
LH	Left-hand
LHD	Left-hand Drive
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

GENERAL REPAIR INSTRUCTIONS

1. WORK PRECAUTIONS

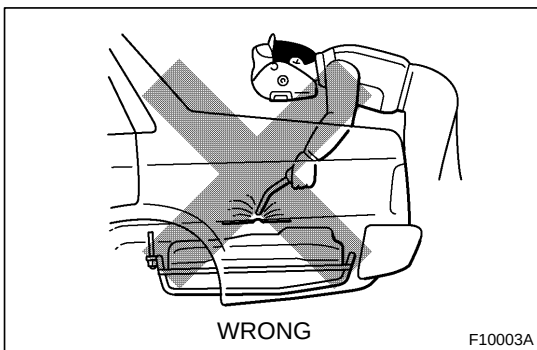
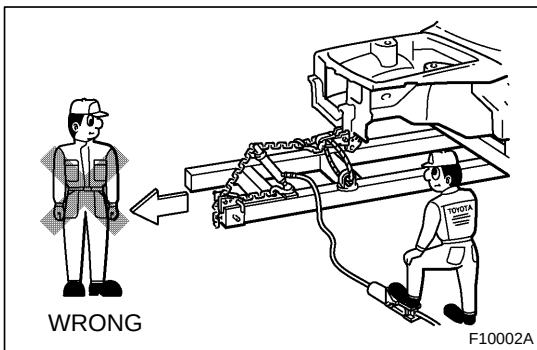
(a) VEHICLE PROTECTION

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

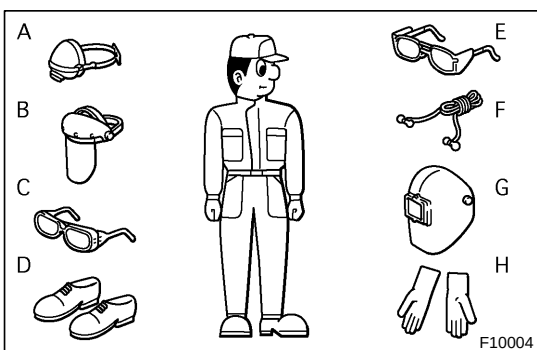


(b) SAFETY

- (1) Never stand in 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 totally.
- (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

2. 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 property of the plastic.

Code	Material name	Heat* resistant temperature limit °C (°F)	Resistance to alcohol or gasoline	Notes
AAS	Acrylonitrile Acrylic 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.
ABS	Acrylonitrile Butadiene Styrene	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e.g., quick wiping to remove grease).	Avoid gasoline and organic or aromatic solvents.
AES	Acrylonitrile Ethylene Styrene	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e.g., quick wiping to remove grease).	Avoid gasoline and organic or aromatic solvents.
ASA	Acrylonitrile Styrene Acrylate	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e.g., quick wiping to remove grease).	Avoid gasoline and organic or aromatic solvents.
CAB	Cellulose Acetate	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e.g., quick wiping to remove grease).	Avoid gasoline and organic or aromatic solvents.
EPDM	Ethylene Propylene	100 (212)	Alcohol is harmless. Gasoline is harmless if applied only for short time in small amounts.	Most solvents are harmless but avoid dipping in gasoline, solvents, etc.
FRP	Fiber Reinforced Plastics	180 (356)	Alcohol and gasoline are harmless.	Avoid alkali.
EVA	Ethylene Acetate	70 (158)	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.

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

Code	Material name	Heat* resistant temperature limit °C (°F)	Resistance to alcohol or gasoline	Notes
PE	Polyethylene	80 (176)	Alcohol and gasoline are harmless.	Most solvents are harmless.
PET	Polyethylene Terephthalate	75 (167)	Alcohol and gasoline are harmless.	Avoid dipping in water.
PMMA	Polymethyl Methacrylate	80 (176)	Alcohol is harmless if applied only for short time in small amounts.	Avoid dipping or immersing in alcohol, gasoline, solvents, etc.
POM	Polyoxymethylene (Polyacetal)	100 (212)	Alcohol and gasoline are harmless.	Most solvents are harmless.
PP	Polypropylene	80 (176)	Alcohol and gasoline are harmless.	Most solvents are harmless.
PPO	Modified Polyphenylene Oxide	100 (212)	Alcohol is harmless.	Gasoline is harmless if applied only for quick wiping to remove grease.
PS	Polystyrene	60 (140)	Alcohol and gasoline are harmless if applied only for short time in small amounts.	Avoid dipping or immersing in alcohol, gasoline, solvents, etc.
PUR	Polyurethane	80 (176)	Alcohol is harmless if applied only for very short time in small amounts (e.g., quick wiping to remove grease).	Avoid dipping or immersing in alcohol, gasoline, solvents, etc.
PVC	Polyvinylchloride (Vinyl)	80 (176)	Alcohol and gasoline are harmless if applied only for short time in small amounts (e.g., quick wiping to remove grease).	Avoid dipping or immersing in alcohol, gasoline, solvents, etc.
SAN	Styrene Acrylonitrile	80 (176)	Alcohol is 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.
TPO	Thermoplastic Olefine	80 (176)	Alcohol is harmless. Gasoline is harmless if applied only for short time in small amounts.	Most solvents are harmless but avoid dipping in gasoline, solvents, etc.
TPU	Thermoplastic Polyurethane	80 (176)	Alcohol is 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.
UP	Unsaturated Polyester	110 (233)	Alcohol and gasoline are harmless.	Avoid alkali.

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

3. LOCATION OF PLASTIC BODY PARTS

Parts Name	Code
Front Bumper Cover	TSOP
Radiator Grille	ABS
Front License Plate Bracket	PP
Headlight	PC/PP
Fog Light	PC/PE
Hood Moulding	ABS
Outer Rear View Mirror	ABS
Door Outside Handle	PC/PBT
Rocker Panel Moulding	TPO
Center Stop Light	PMMA/ABS
Rear Spoiler	ABS
Rear Combination Light	PMMA/ASA
License Plate Light	PC
Rear Bumper Cover	TSOP

HINT:

- Resin material differs with model.
- / Made up of 2 or more kind of materials.

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 brake (32) section of the repair manual for the relevant model 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. Particularly accurate repair of the body must also be done 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 during alignment and section DI of this section.

Component to be aligned	Section of repair manual for relevant model
Front Wheels	Front Suspension (26) section
Rear Wheels	Rear Suspension (27) 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, memory of the clock and audio systems will be cancelled. 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 seat and outside rear view mirror, which are all equipped with memory function, it is not possible to make a record of the memory contents.

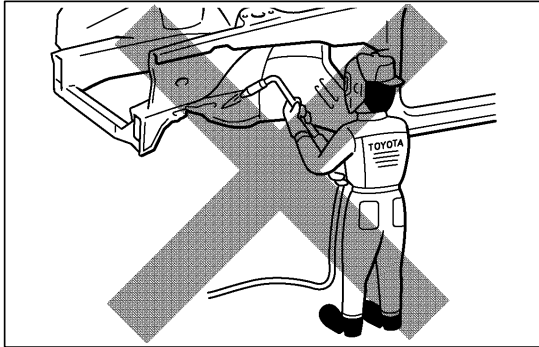
So when the operation is finished, it will be necessary to explain this fact to the customer, and request the customer to adjust the features and reset the memory.

- Do not expose the ECUs to ambient temperatures above 80°C (176°F).

NOTICE: If it is possible 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.

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 being sought after.

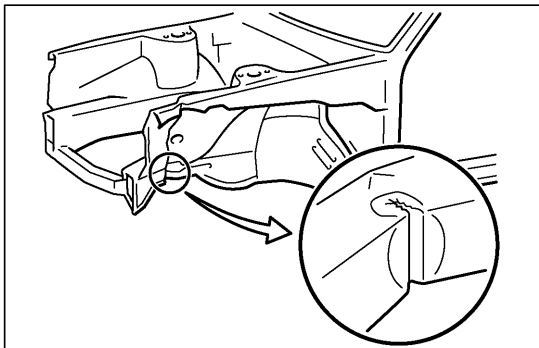
At Toyota, in order to fulfill these requirements, we use high tensile strength steel sheets and rust preventive steel sheets on the body.

High tensile steel sheets are made with alloy additives and a special heat treatment in order to improve the 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 a body structure part is heat repaired with an acetylene torch or other heating source, the crystalline organization of the steel sheet will change and the 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.

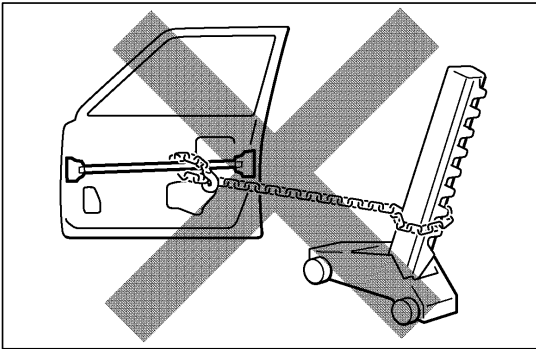
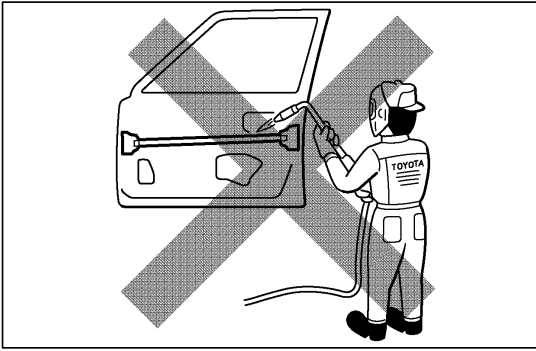


2. STRUCTURE PANEL KINKS

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

Since structure parts were designed to exhibit a 100% performance when they were in their original shape, if they are deformed in an accident, or if the deformed parts are repaired and reused, they become unable to exhibit the same performance as intended in the design.

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



3. IMPACT BEAM REPAIR

The impact beam and bracket are necessary and important parts in maintaining a survival space for passengers in a side collision.

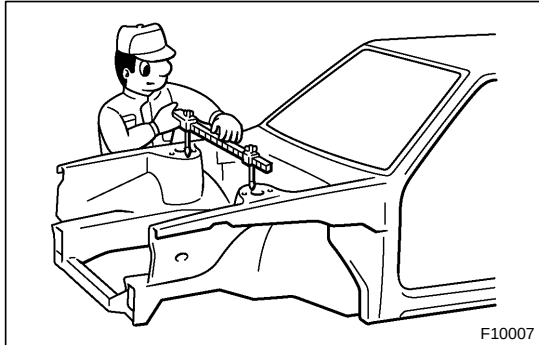
For impact beam, we use special high tensile strength steel.

The high tensile strength steel maintains its special crystal-line organization by heat treatment or alloy additives.

Since these parts were designed to exhibit a 100% performance when they were in their original shape, if they are deformed in an accident, or if the deformed parts are repaired and reused, they become unable to exhibit the same performance as intended in the design.

It is necessary to replace the door assembly when impact beam or bracket is damaged.

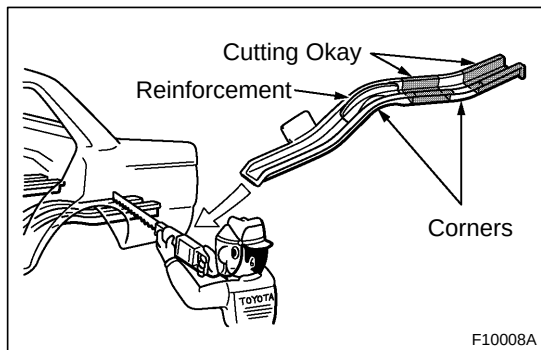
PROPER AND EFFICIENT WORK PROCEDURES



1. REMOVAL

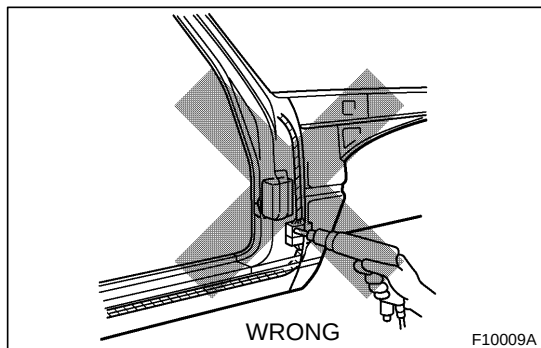
(a) PRE-REMOVAL MEASURING

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



(b) CUTTING AREA

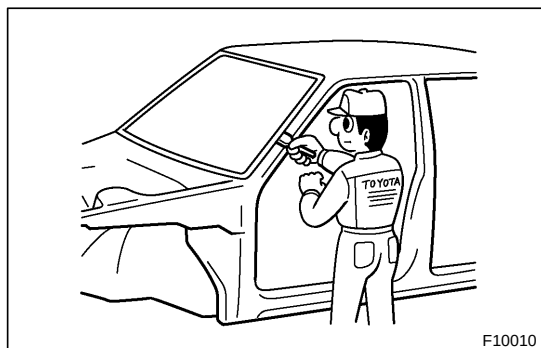
- (1) Always cut in a straight line and avoid reinforced area.



(c) PRECAUTIONS FOR DRILLING OR CUTTING

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

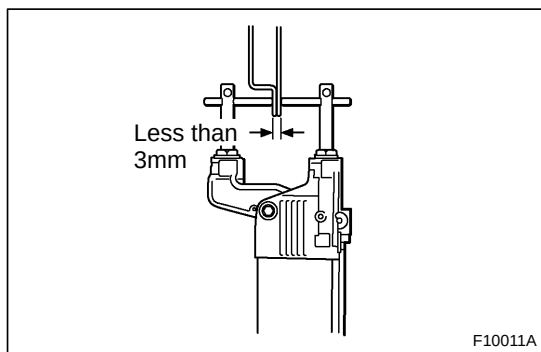
HINT: See "Handling Precautions on Related Components" on page IN-15.



(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-15.

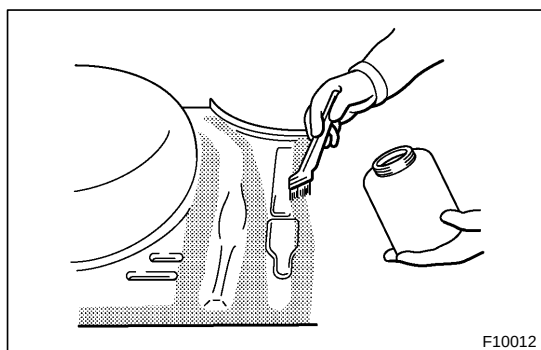


2. PREPARATION FOR INSTALLATION

(a) SPOT WELD POINTS

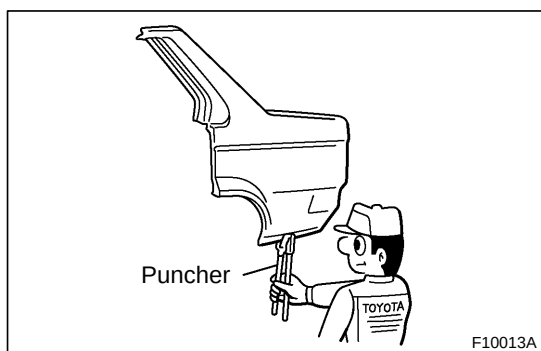
- (1) When welding panels with a combined thickness of over 3mm (0.12in.), use a MIG (Metal Inert Gas) welder for plug welding.

HINT: Spot welding will not provide sufficient durability for panels over 3mm (0.12in.) thick.



(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.



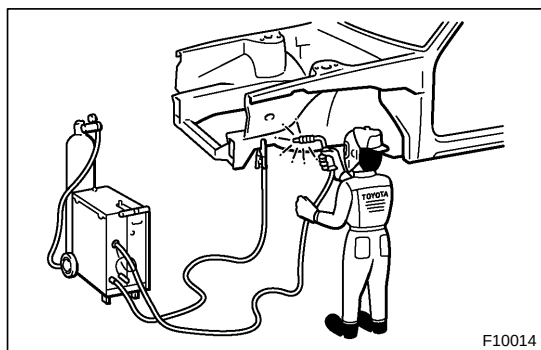
(c) MAKING HOLES FOR PLUG WELDING

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

REFERENCE:

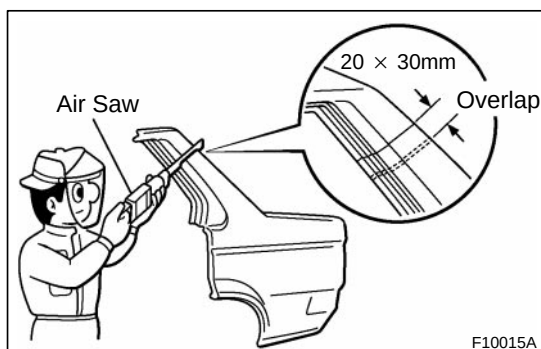
mm (in.)

Thickness of welded portion	Size of plug hole
1.0 (0.04) under	5 (0.20) ϕ over
1.0 (0.04) - 1.5 (0.06)	6.4 (0.25) ϕ over
1.5 (0.06) over	8 (0.31) ϕ over



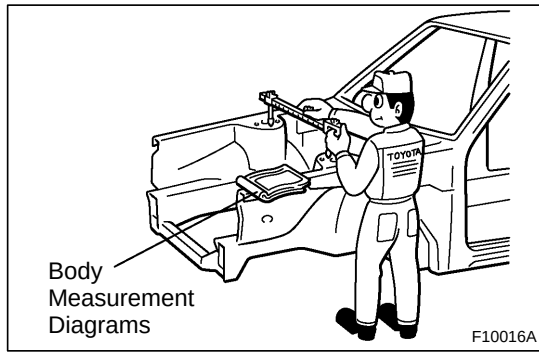
(d) SAFETY PRECAUTIONS FOR ELECTRICAL COMPONENTS

- (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

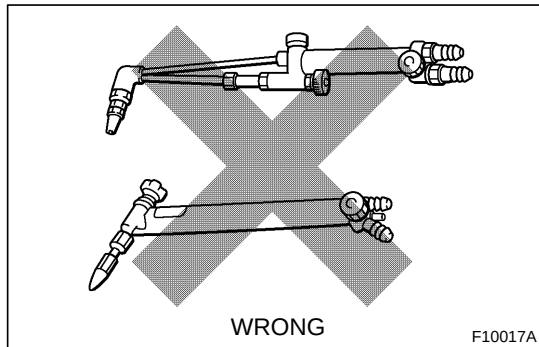
- (1) For joint areas, rough cut the new parts, leaving 20 - 30mm (0.79 - 1.18in.) overlap.



3. INSTALLATION

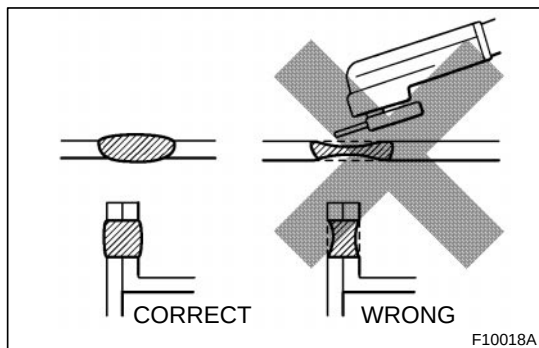
(a) PRE-WELDING MEASUREMENTS

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



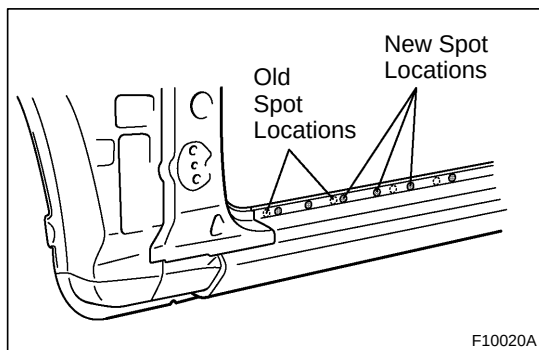
(b) WELDING PRECAUTIONS

- (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 specified.



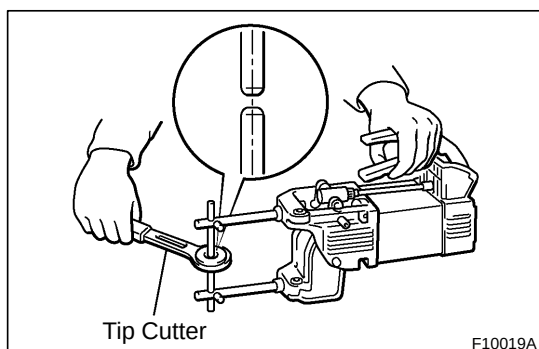
(c) POST-WELDING REFINISHING

- (1) Always check the welded spots to insure they are secure.
- (2) When smoothing out the weld spots with a disc grinder, be careful not to grind off too much as this would weaken the weld.



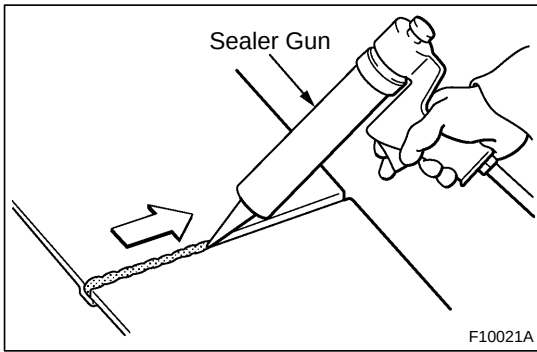
(d) SPOT WELD LOCATIONS

- (1) Try to avoid welding over previous spots.



(e) SPOT WELDING PRECAUTIONS

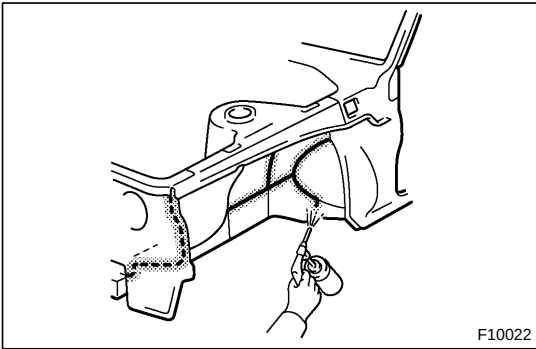
- (1) The shape of the welding tip point has an effect on the strength of the weld.
- (2) Always insure that the seams and welding tip are free of paint.



4. ANTI-RUST TREATMENT

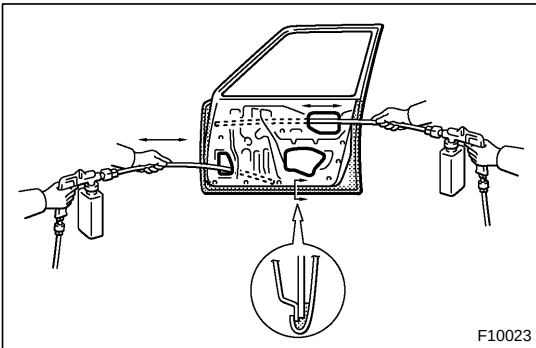
(a) BODY SEALER APPLICATION

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



(b) UNDERCOAT APPLICATION

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



5. ANTI-RUST TREATMENT 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 hoods, and around the hinges, or the welded surfaces inside the boxed cross-section structure of the side member, body pillar, etc.

6. ANTI-RUST TREATMENT BY PAINTING

REFERENCE:

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

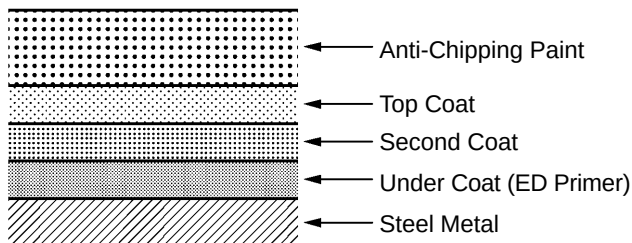
(a) ANTI-CHIPPING PAINT

- (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.

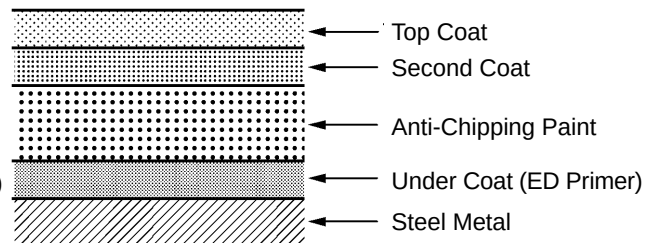
HINT:

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.

- Apply the anti-chipping paint after the top coat.



- Apply the anti-chipping paint before the second coat.



F10024A

VIEWS OF THIS TEXT

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.

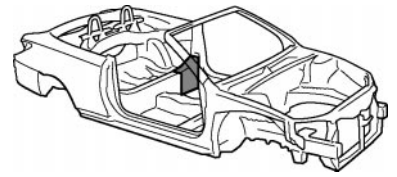
Section categories

- Each section has been divided as shown below.

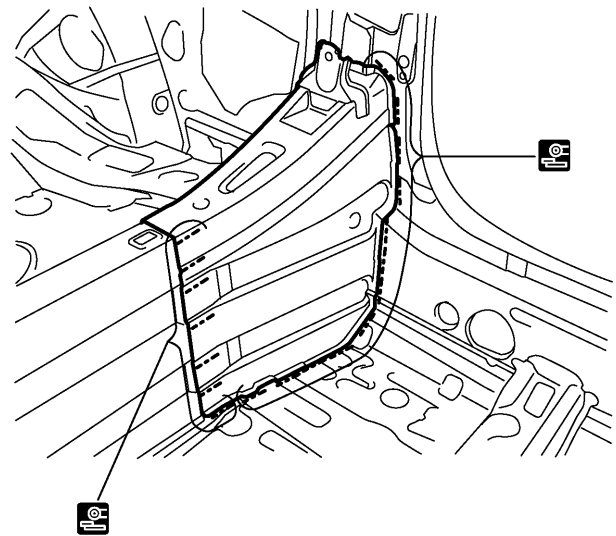
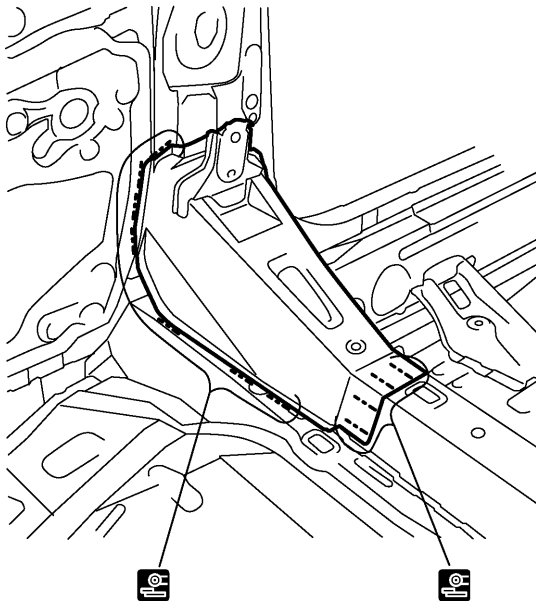
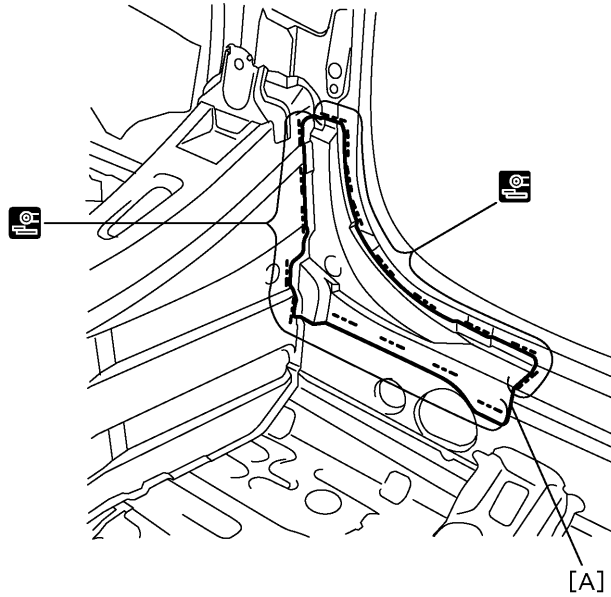
Section Title	Contents	Examples
INTRODUCTION	Explanation of general body repair. Views of weld panel replacement instructions.	Cautionary items. Views of weld panel replacement instructions.
BODY PANEL REPLACEMENT	Instructions for replacing the weld panels from the white body condition, from which bolted 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 coat. Body sealer.

Abbreviation of contents in this text.

- The following essential procedures have been abbreviated. When actually working, conduct this work properly.
 - (1) Jack and lift operations.
 - (2) Clean and wash removed parts, if necessary.
 - (3) Visual inspection.

BELT ANCHOR REINFORCEMENT (ASSY)**REPLACEMENT**

F17031A

REMOVAL

F17031

POINT

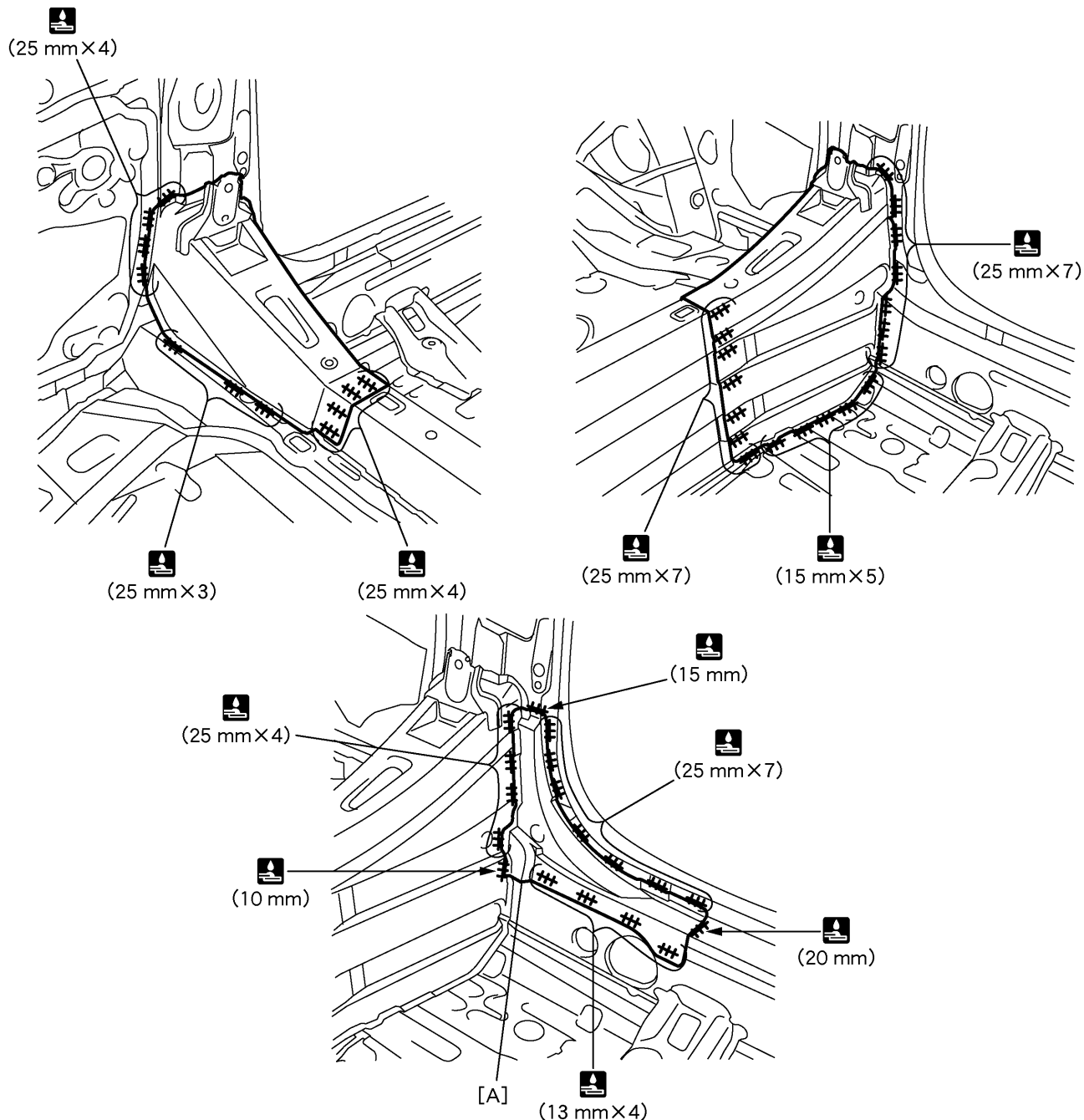
- 1 After removing the [A], remove the belt anchor reinforcement.

PART NAME

[A] Center Floor No.1 Reinforcement

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F17032

PART NAME

[A] Center Floor No.1 Reinforcement

10 mm (0.39 in.)

13 mm (0.51 in.)

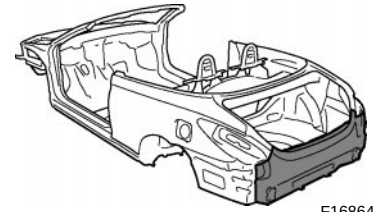
15 mm (0.59 in.)

20 mm (0.79 in.)

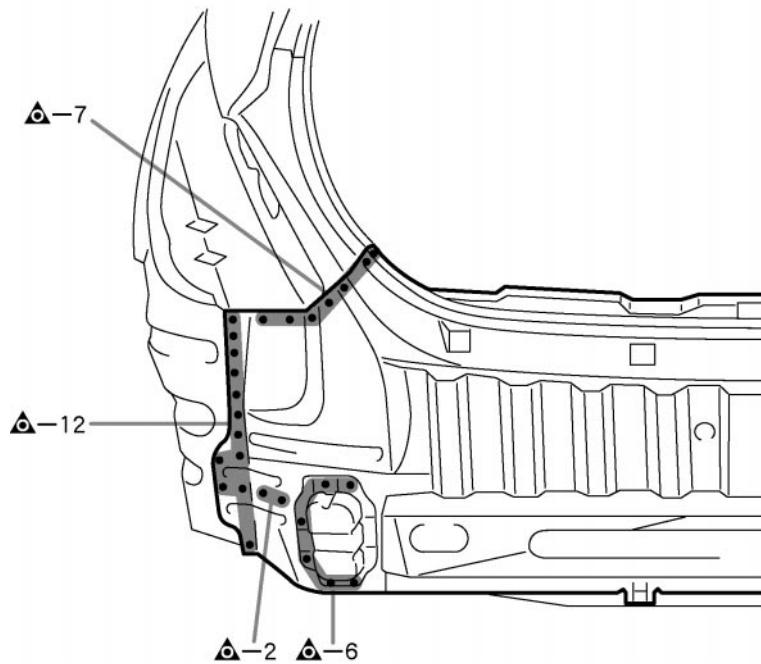
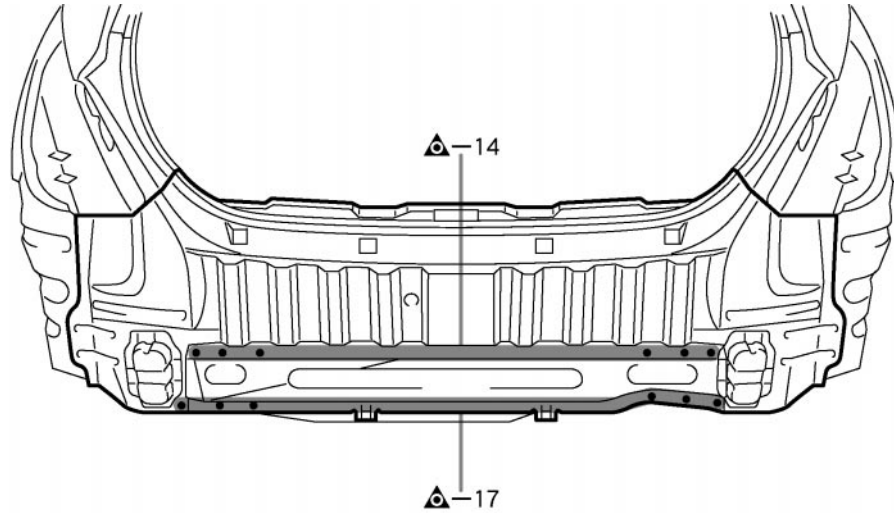
25 mm (0.98 in.)

BODY LOWER BACK PANEL (ASSY)

REPLACEMENT



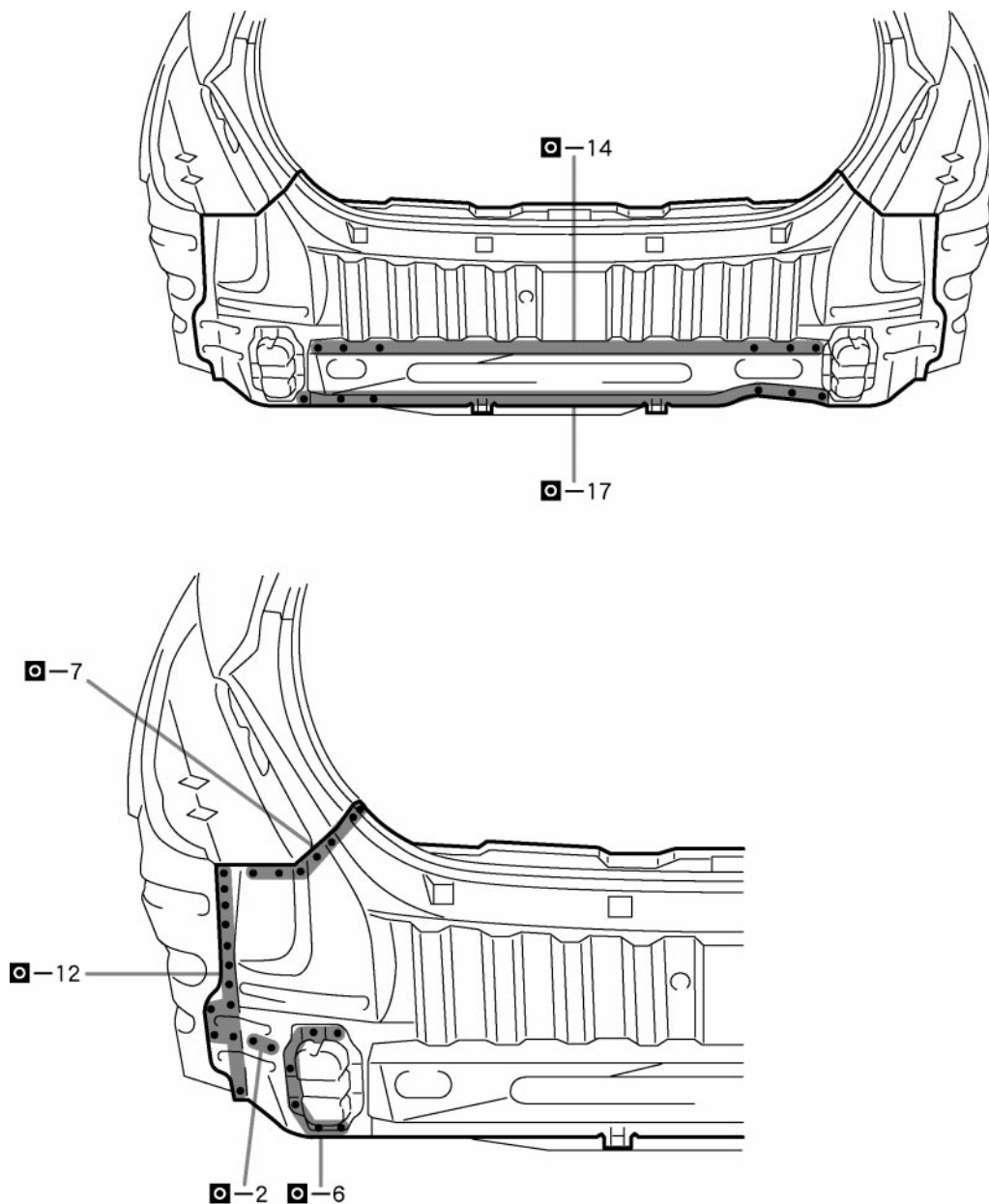
F16864B

REMOVAL

F16864

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



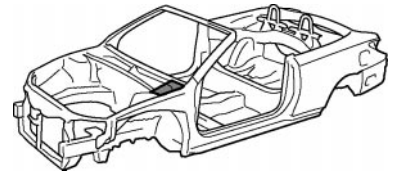
F16865

POINT

- 1 Inspect the fitting of the luggage compartment door and rear combination light, etc., before welding, since this affects the appearance of the finish.

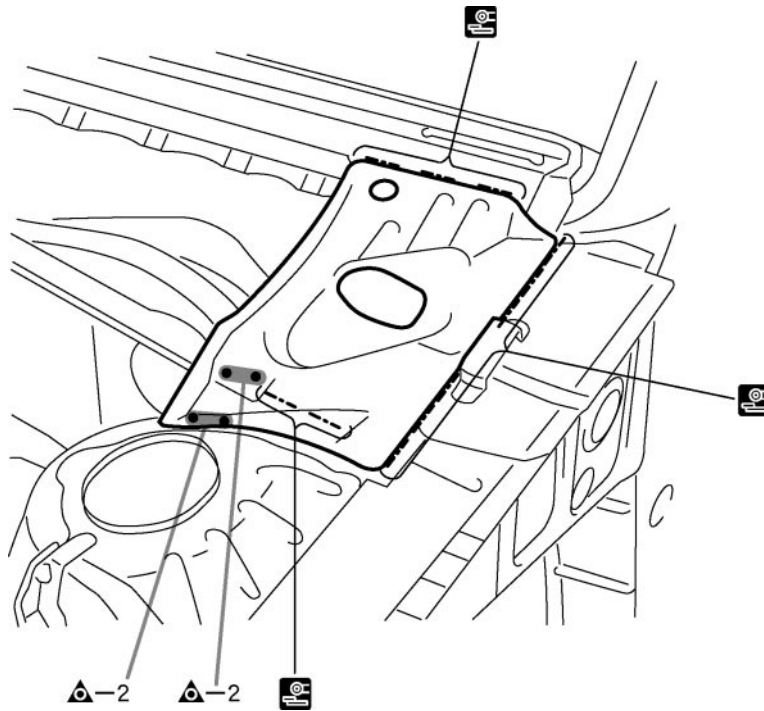
COWL TOP SIDE REINFORCEMENT (ASSY)

REPLACEMENT



F16838B

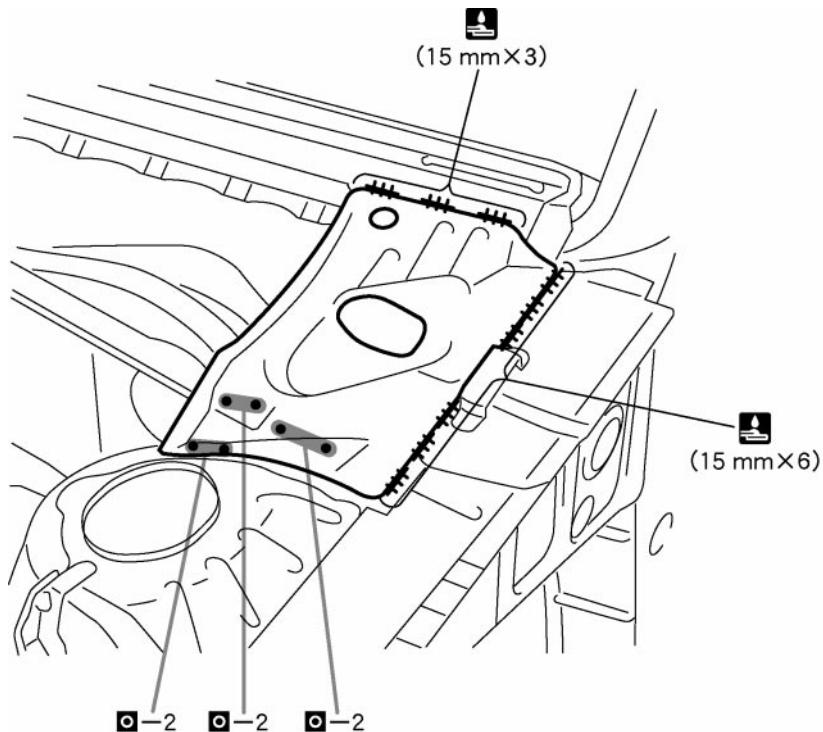
REMOVAL



F16838

INSTALLATION

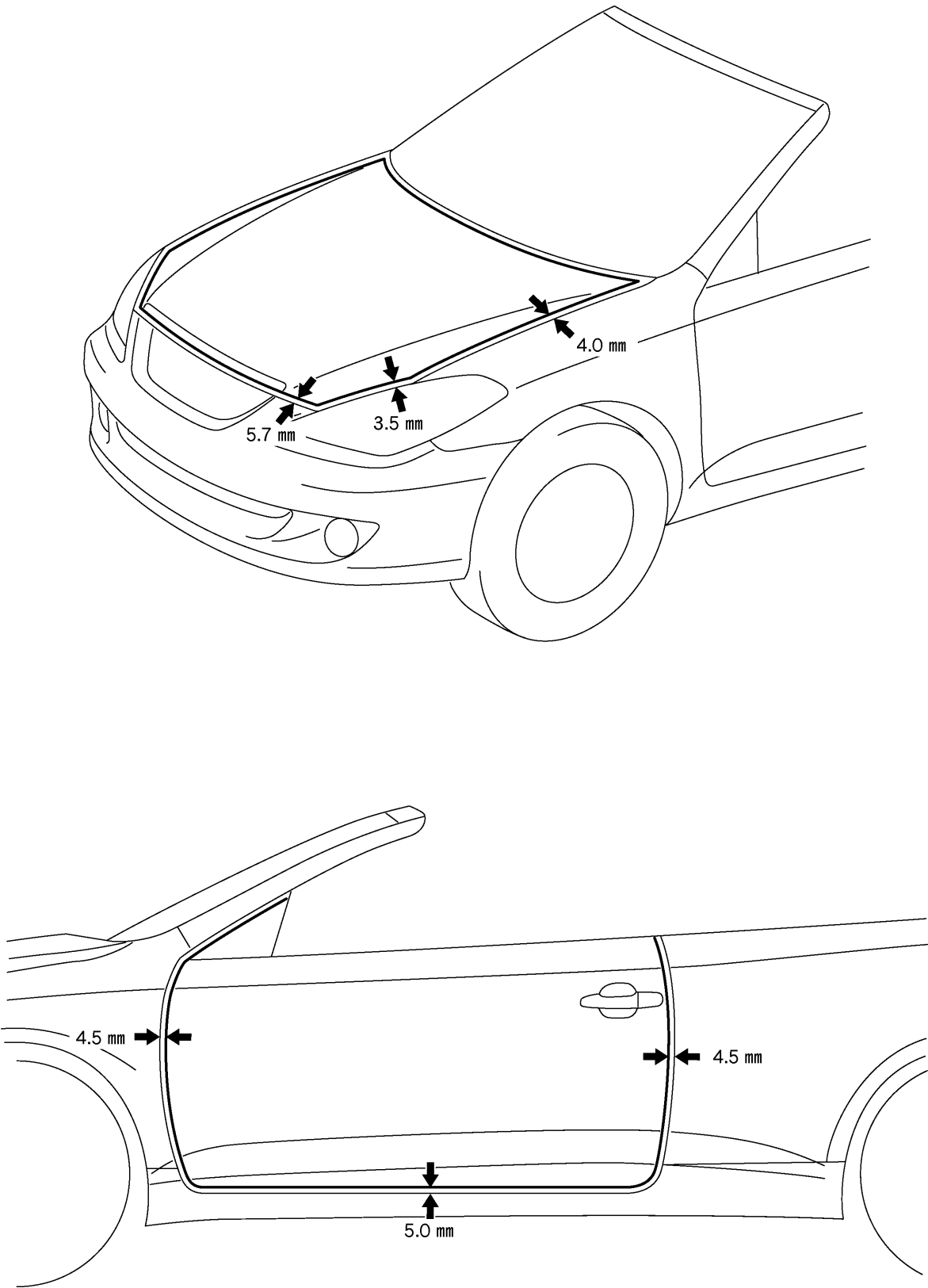
- Temporarily install the new parts and measure each part of the new parts in accordance with the body dimension diagram. (See the body dimension diagram)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F16839

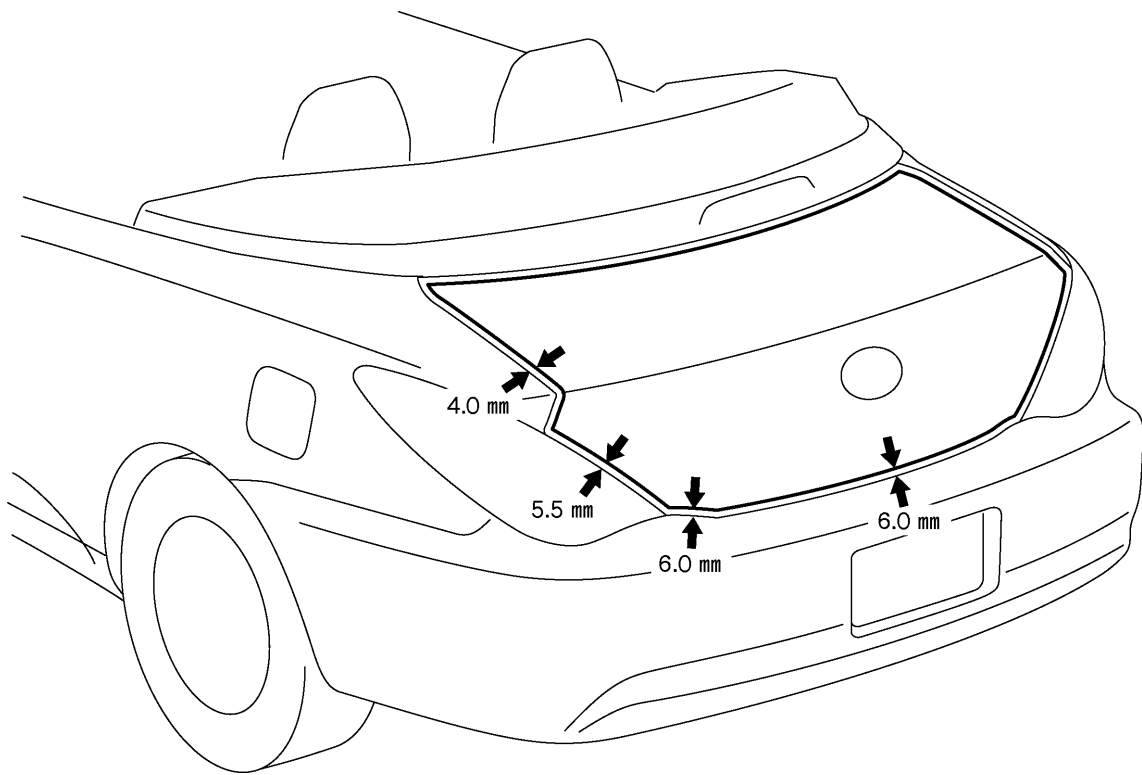
15 mm (0.59 in.)

FIT STANDARDS



F17011

3.5 mm (0.138 in.)	4.0 mm (0.157 in.)	4.5 mm (0.177 in.)
5.0 mm (0.197 in.)	5.7 mm (0.224 in.)	—



F17012

4.0 mm (0.157 in.)

5.5 mm (0.217 in.)

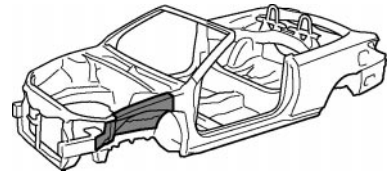
6.0 mm (0.236 in.)

MEMO

FRONT FENDER APRON (ASSY)

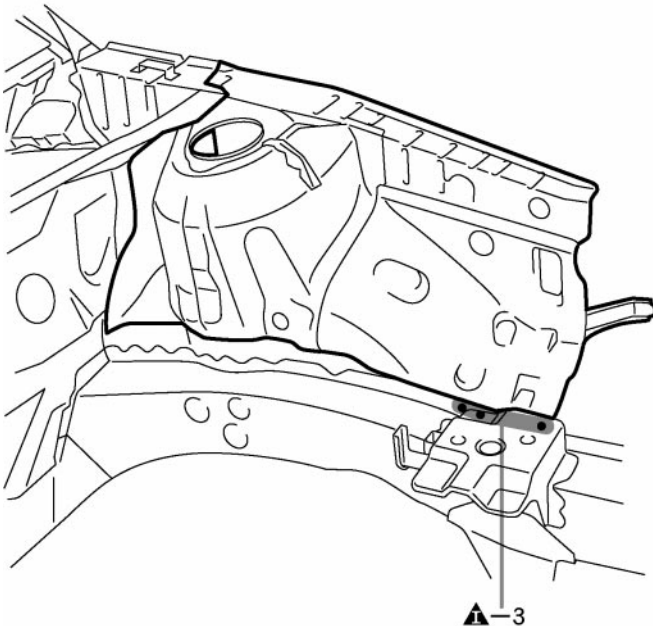
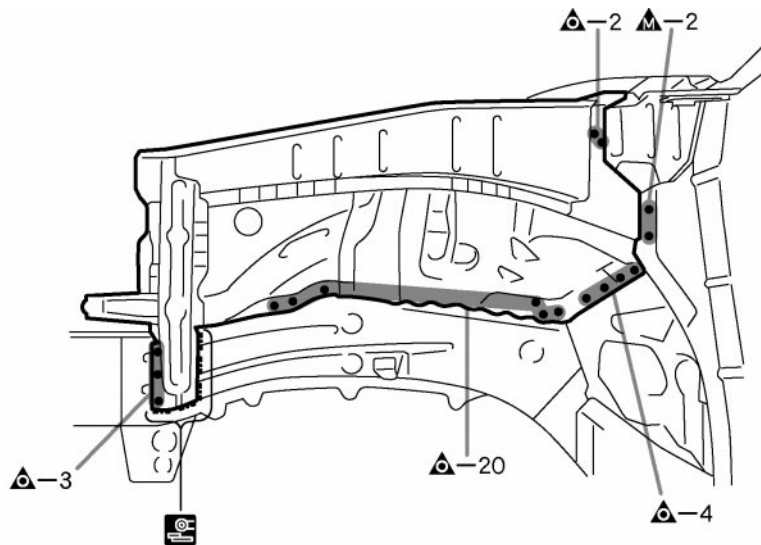
REPLACEMENT

With the radiator upper support and front body pillar lower gusset removed.



F16831B

REMOVAL

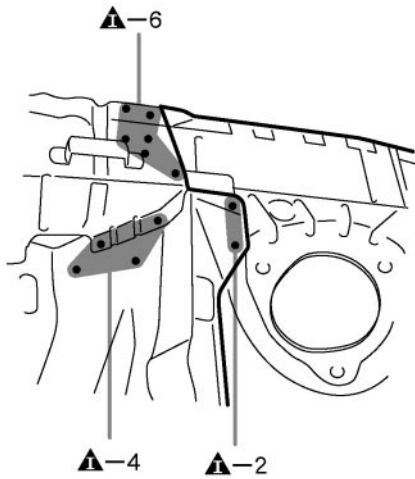


F16831

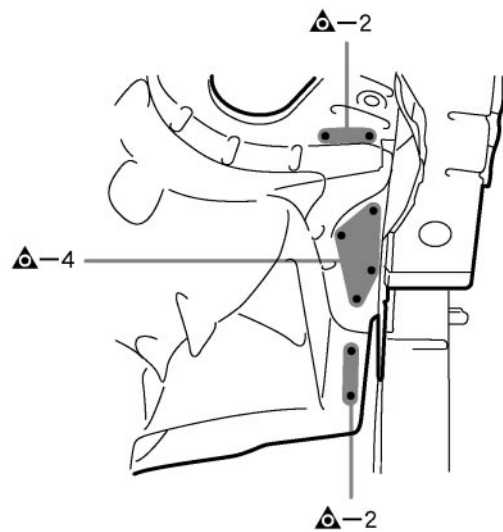
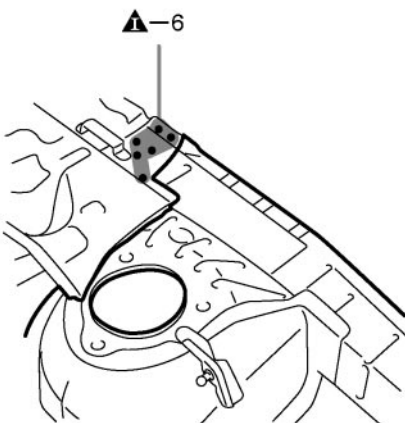
POINT

- 1 Two ways of working procedures; when removing and when not removing the cowl top side reinforcement, are described.

[When removing the cowl top side reinforcement]

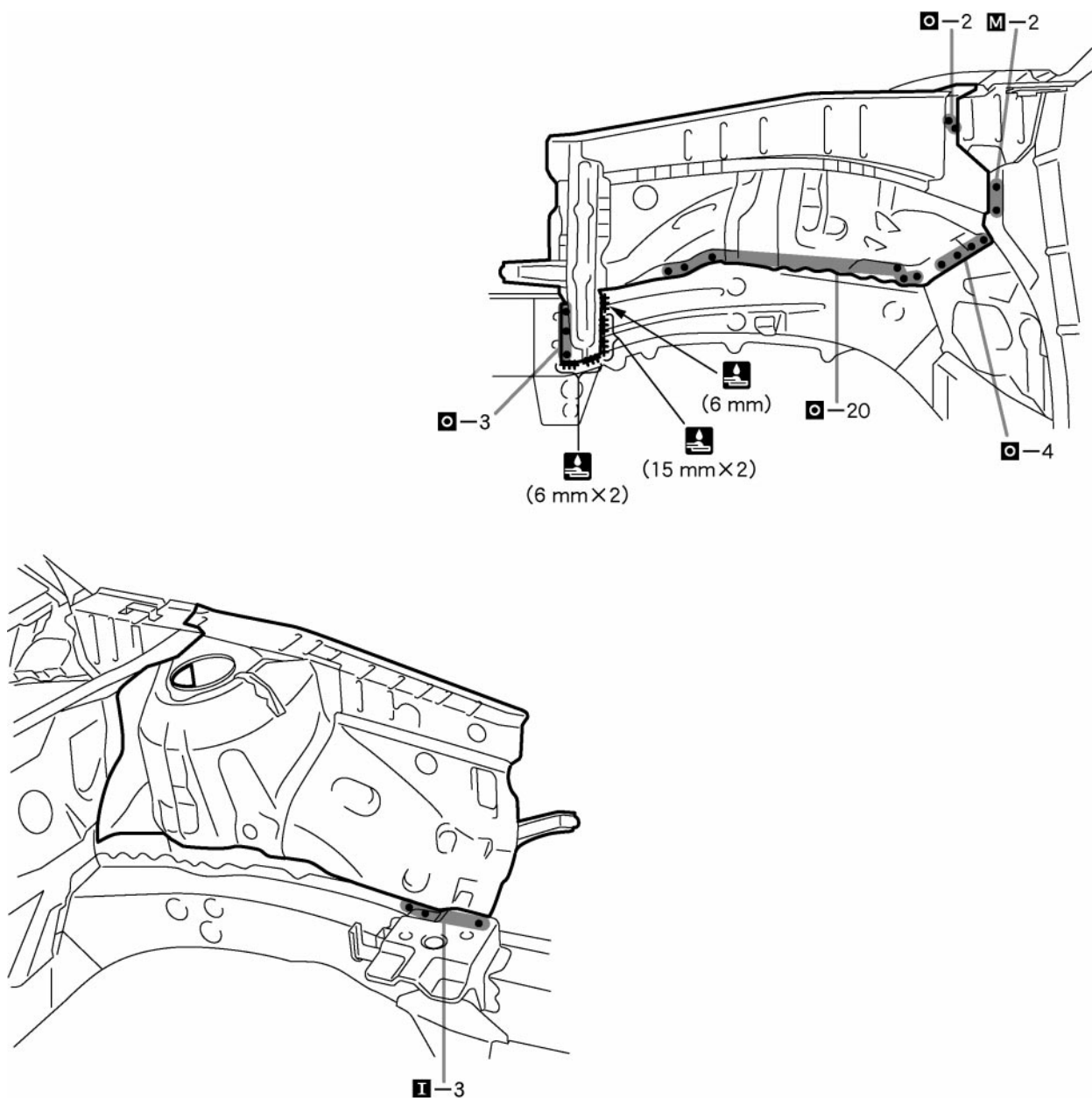


[When not removing the cowl top side reinforcement]



INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



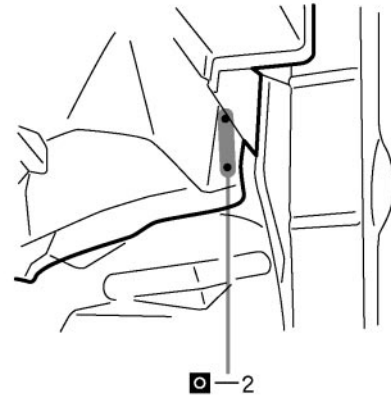
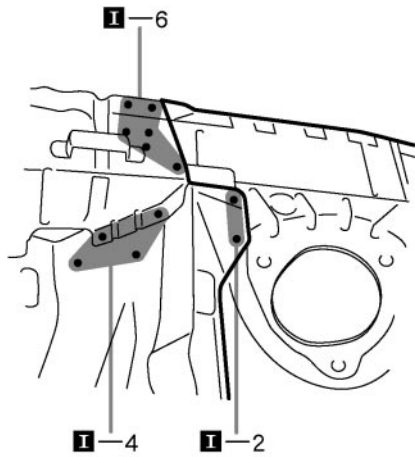
F16832

POINT

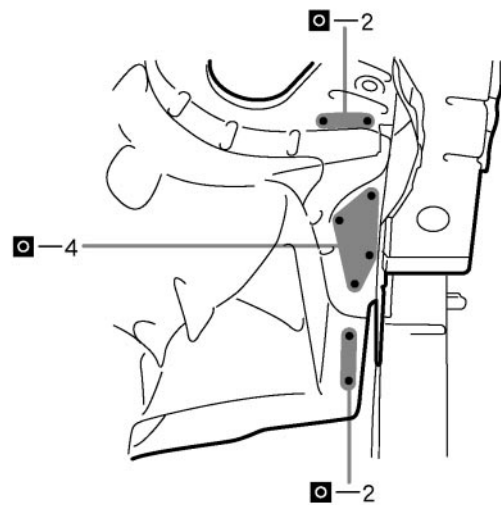
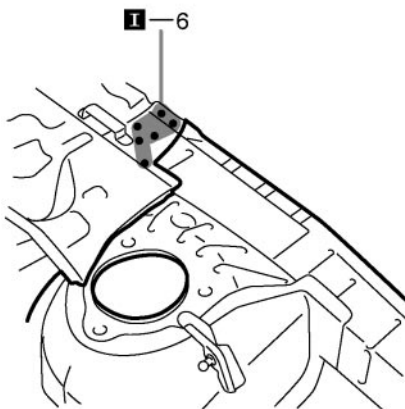
- 1 Inspect the fitting of the front fender and hood, etc., before welding, since this affects the appearance of the finish.
- 2 Make sure each measurement is correct, as this part affects the front wheel alignment.

6 mm (0.24 in.) 15 mm (0.59 in.)

[When removing the cowl top side reinforcement]



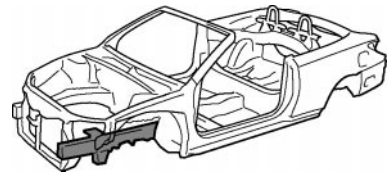
[When not removing the cowl top side reinforcement]



FRONT SIDEMEMBER (CUT-H)

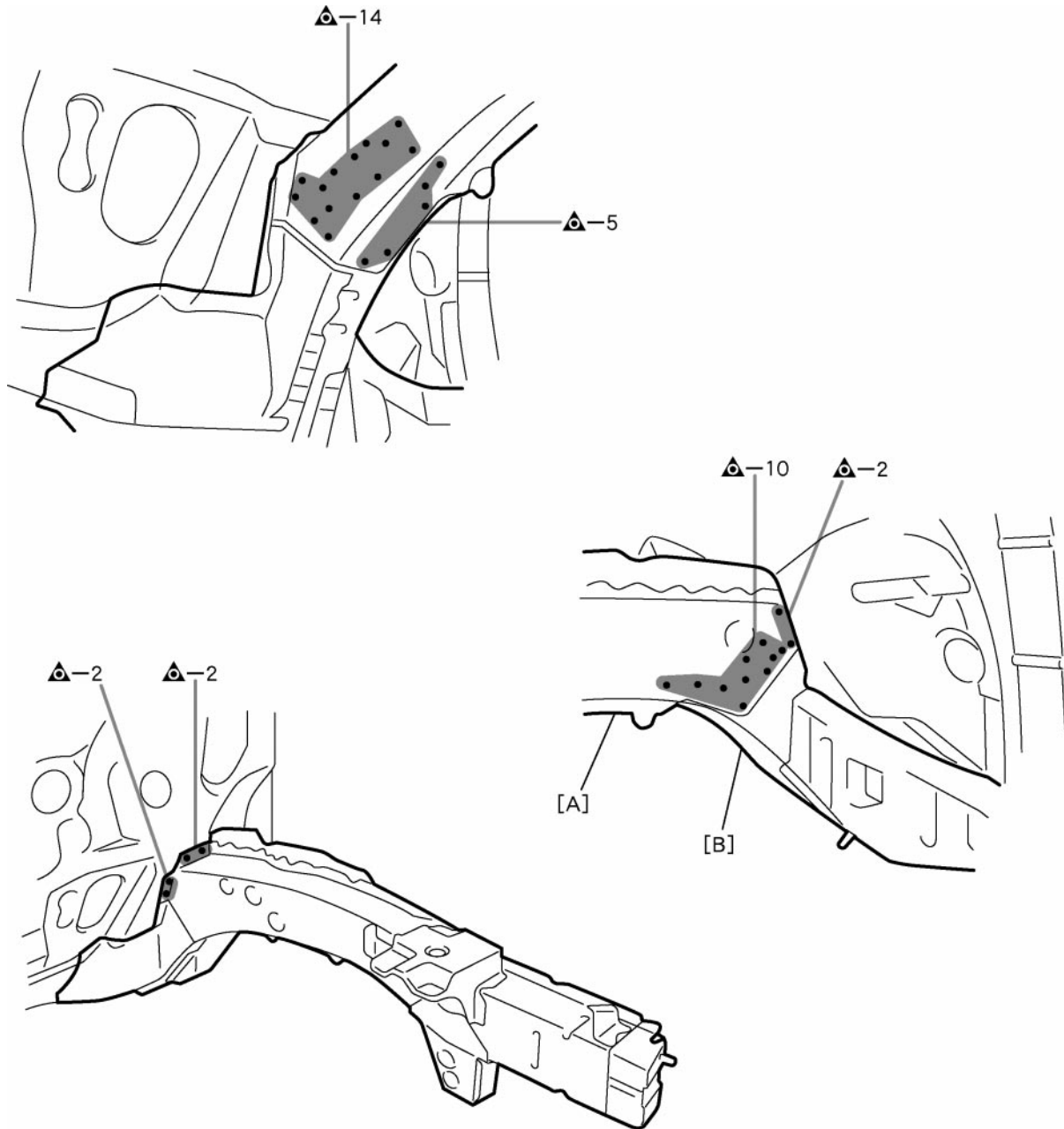
REPLACEMENT

With the radiator support upper brace, radiator side support, front crossmember and front fender apron removed.



F16835B

REMOVAL



F17014

POINT

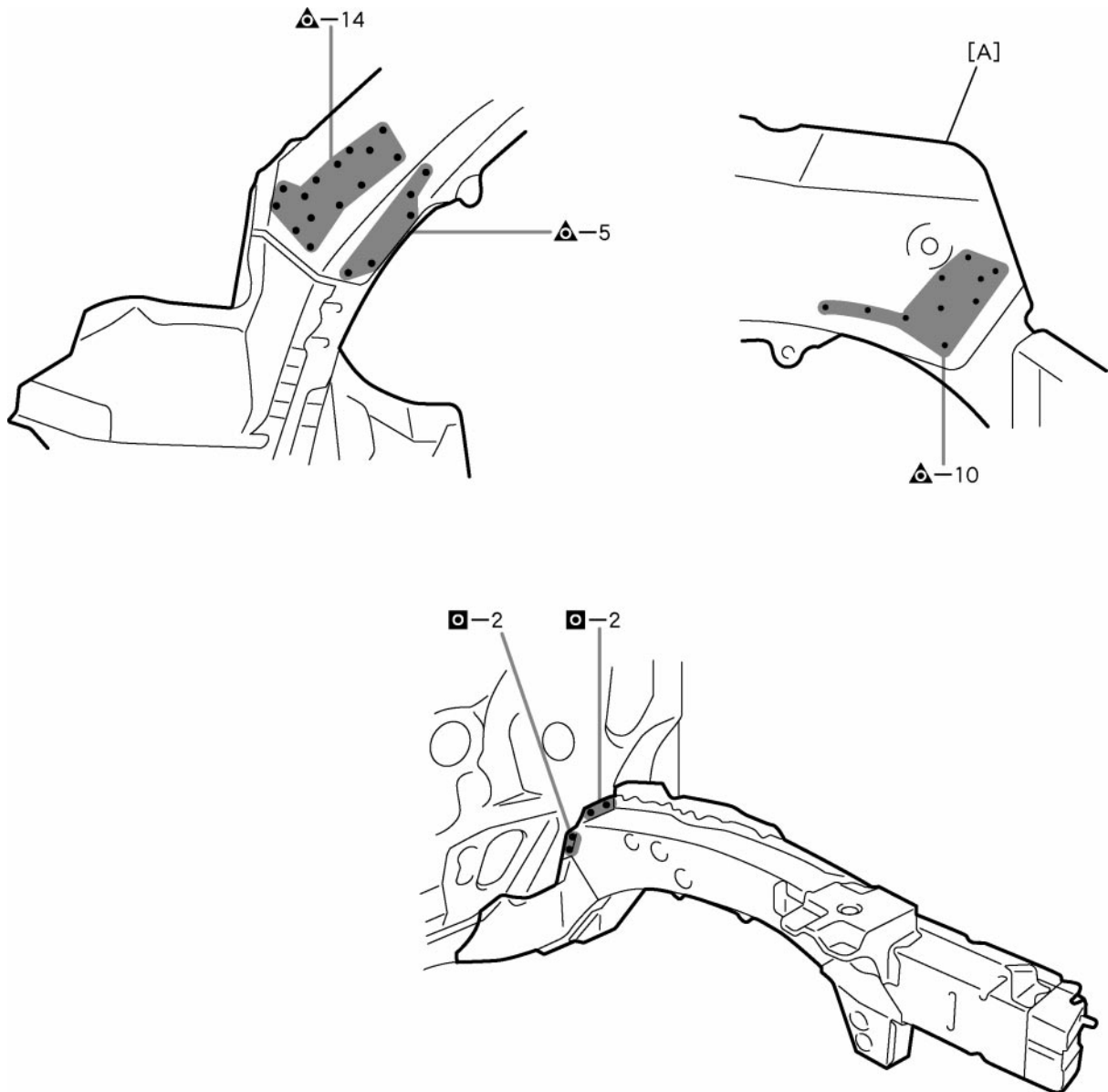
1 Separate the front sidemember, [A] and [B] at the welded part, and remove the front sidemember.

PART NAME

[A] Front Sidemember Outer Plate [B] Front Side Inner Rear Member

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



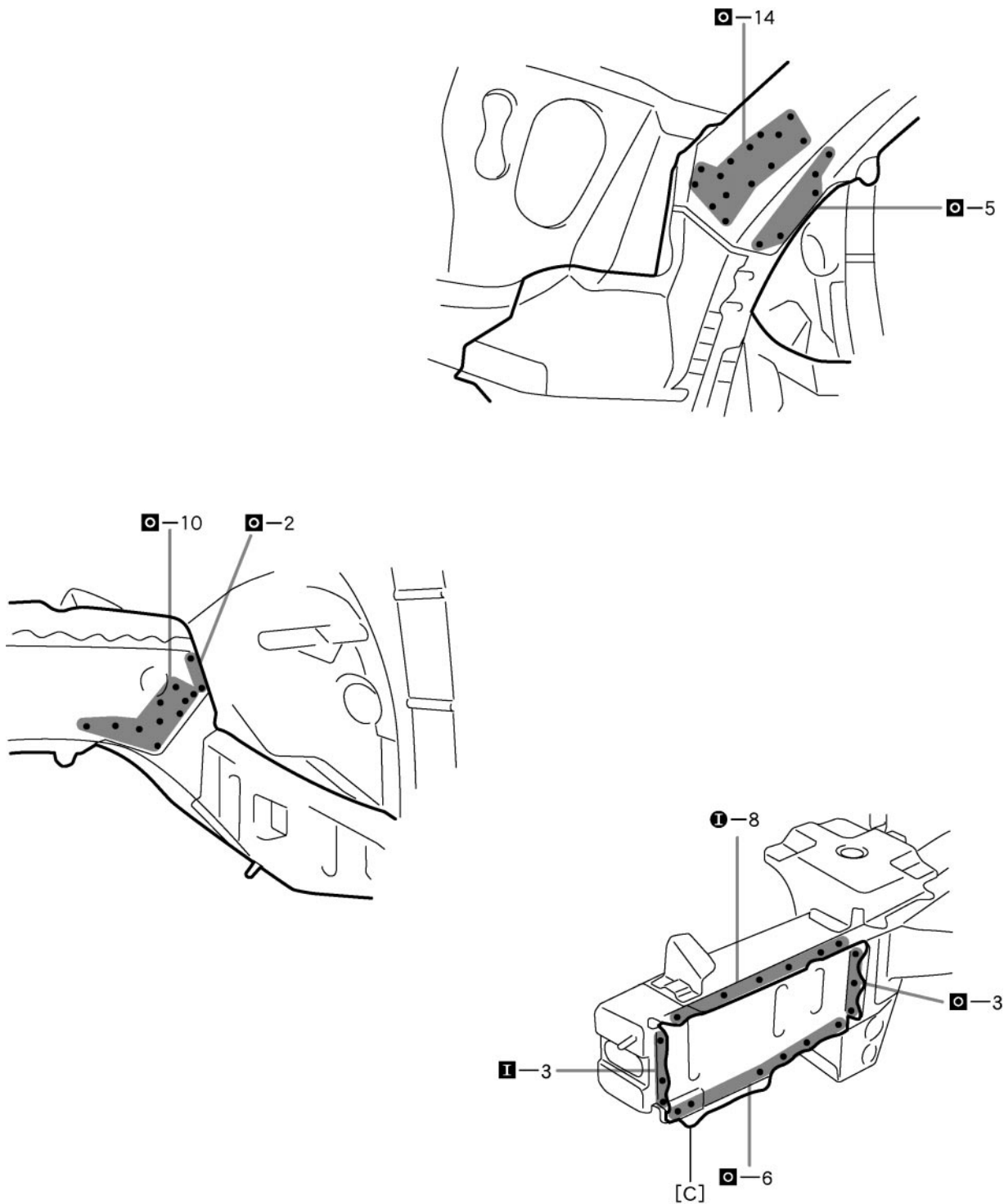
F16836

POINT

- 1 Remove the front sidemember and [A] from the new parts of front sidemember assembly.

PART NAME

[A] Front Sidemember Outer Plate



F17015

POINT

1 Make sure each measurement is correct, as this part affects the front wheel alignment.

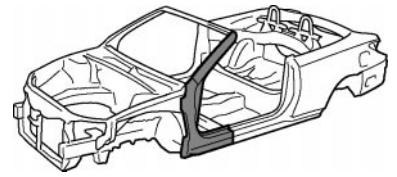
PART NAME

[C] Front Sidemember Extension

FRONT BODY PILLAR (CUT)

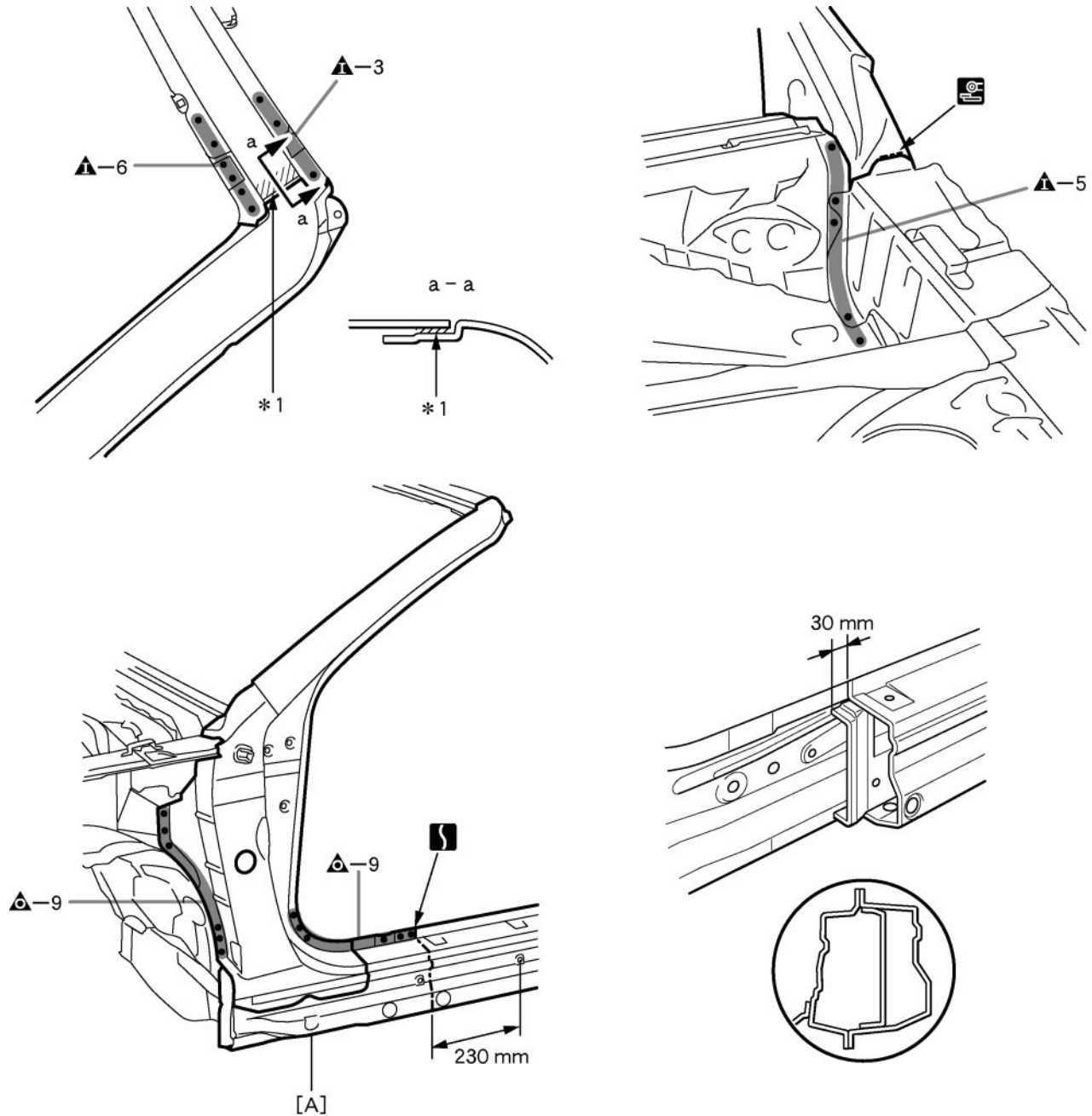
REPLACEMENT

With the cowl top side reinforcement and front body pillar lower gusset removed.



F17052A

REMOVAL



F17052

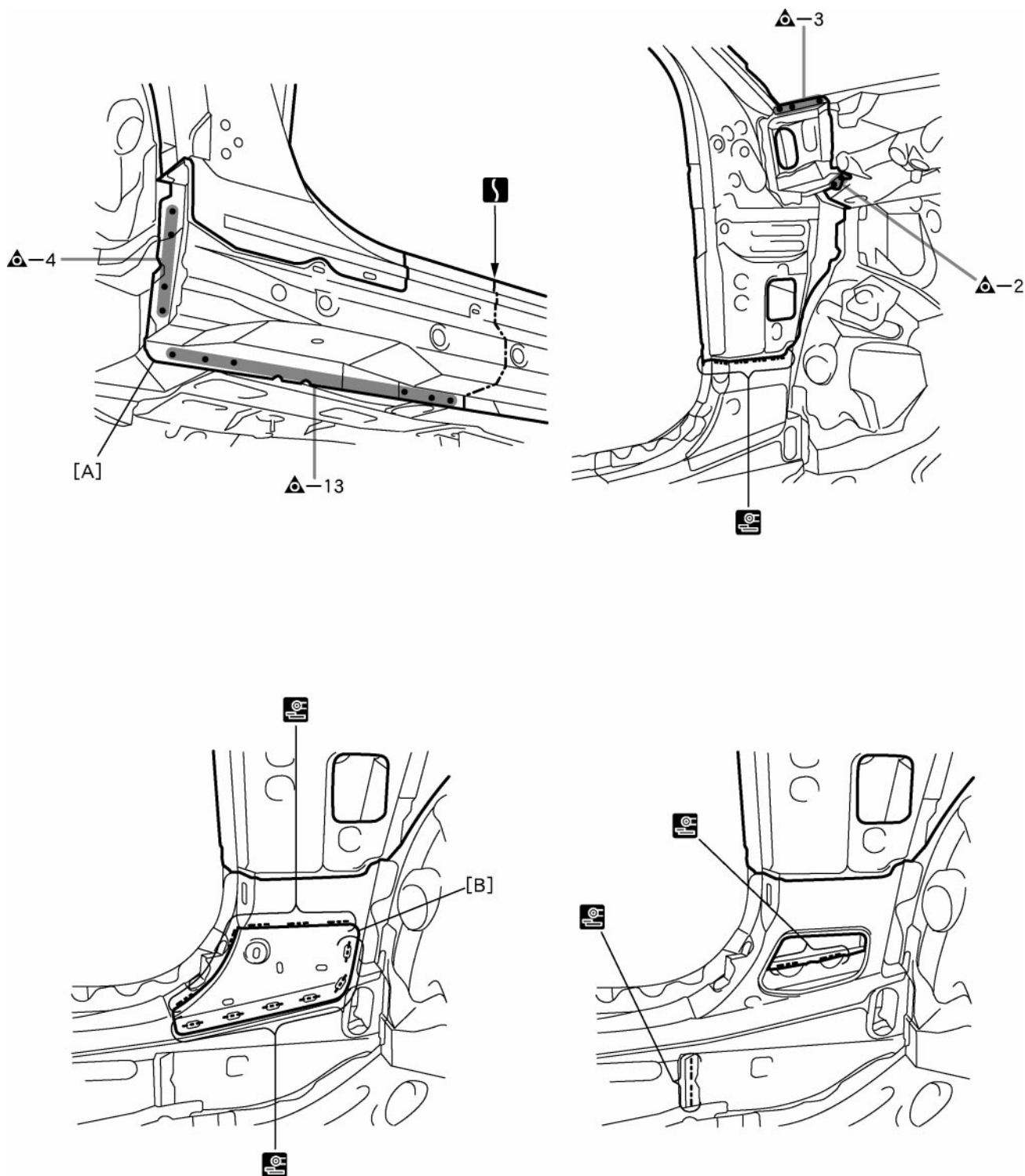
POINT

- 1 *1: In illustration above indicates where the adhesive is.
- 2 Remove the [A] at the same time.

PART NAME

[A] Rocker Outer Panel

30 mm (1.18 in.) 230 mm (9.06 in.)



F17053

POINT

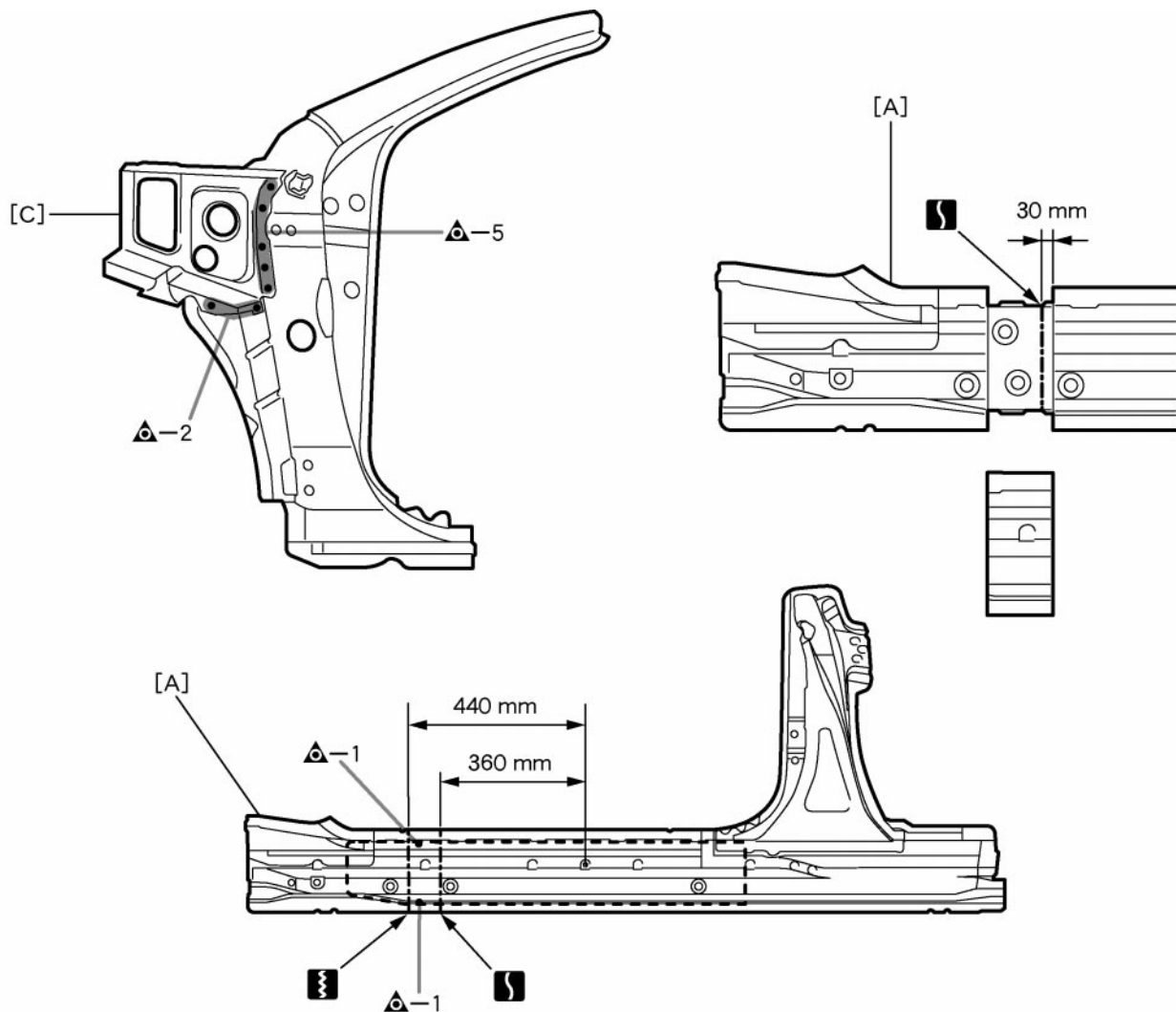
1 After removing the [B], remove the front body pillar.

PART NAME

[A] Rocker Outer Panel [B] Front Side Rail Plate

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



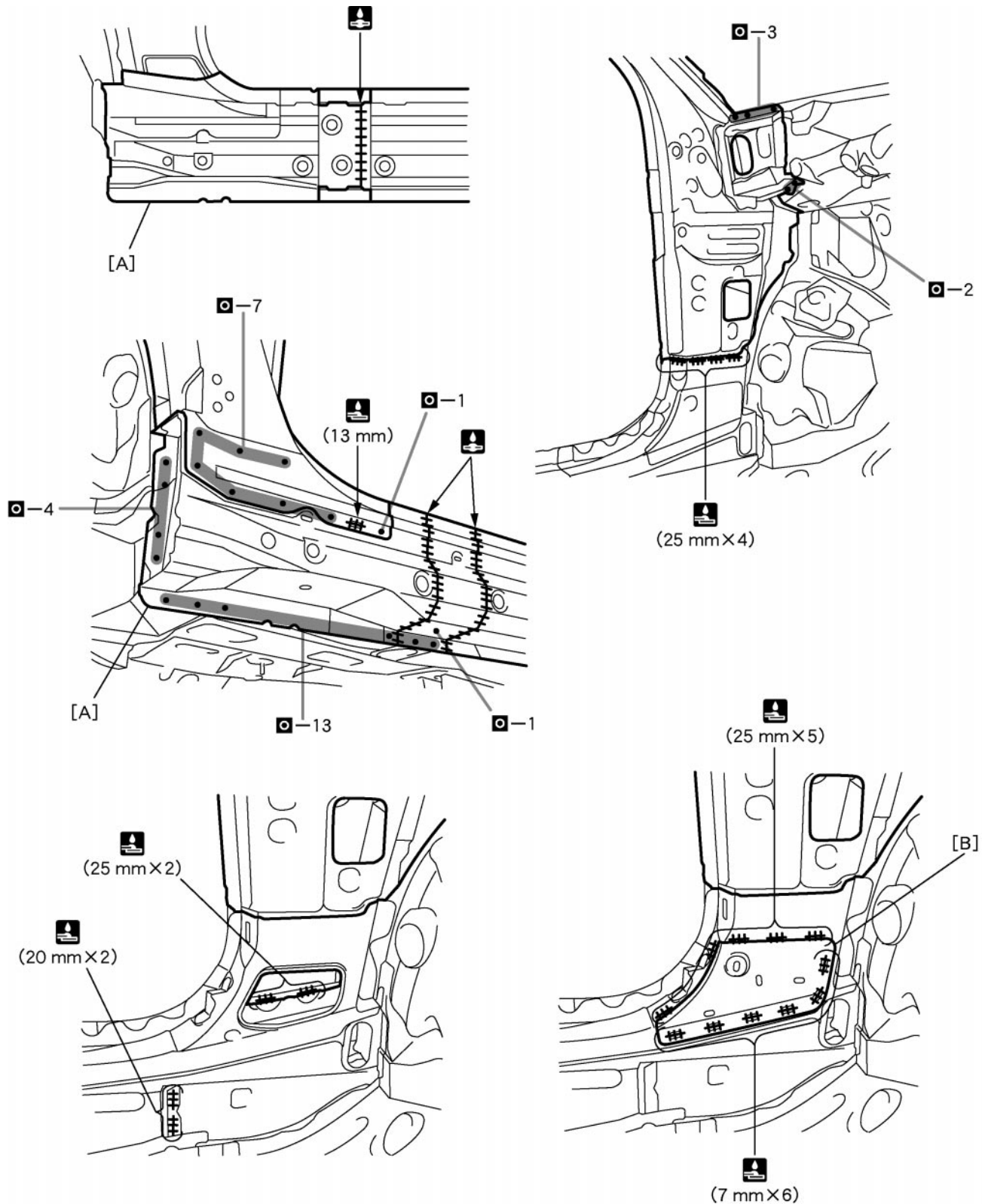
F17054

POINT

- 1 Remove the [C] from the new parts of front body pillar.

PART NAME

[A] Rocker Outer Panle	[B] Front Body Pillar Lower Gusset
30 mm (1.18 in.)	360 mm (14.17 in.) 440 mm (17.32 in.)



F17055

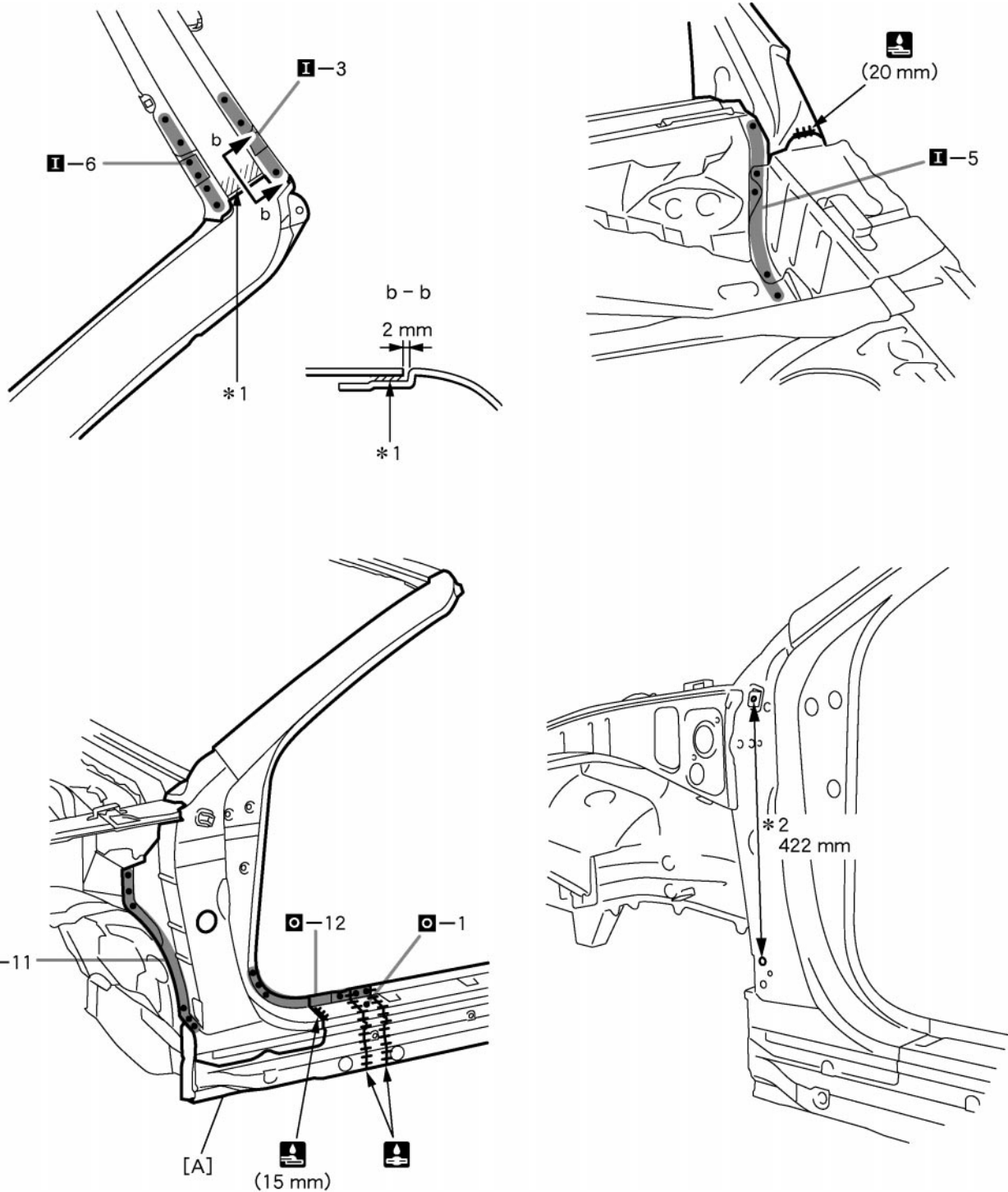
POINT

- 1 Inspect the fitting of the front door, front fender and windshield glass, etc., before welding, since this affects the appearance of the finish.

PART NAME

[A] Rocker Outer Panel [B] Floor Side Rail Plate

7 mm (0.28 in.) 13 mm (0.51 in.) 20 mm (0.79 in.) 25 mm (0.98 in.)



F17056

POINT

1 *1: Apply adhesive (3M™ Automix™ Panel Bonding Adhesive 08115) to the area indicated by *1 illustration.

HINT:

1) Apply enough adhesive for the panels to stick to each other.

2 *2: Reference value.

PART NAME

[A] Rocker Outer Panel

15 mm (0.59 in.)

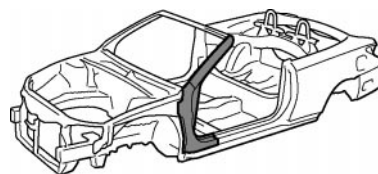
20 mm (0.79 in.)

422 mm (16.61 in.)

FRONT BODY PILLAR (ASSY)

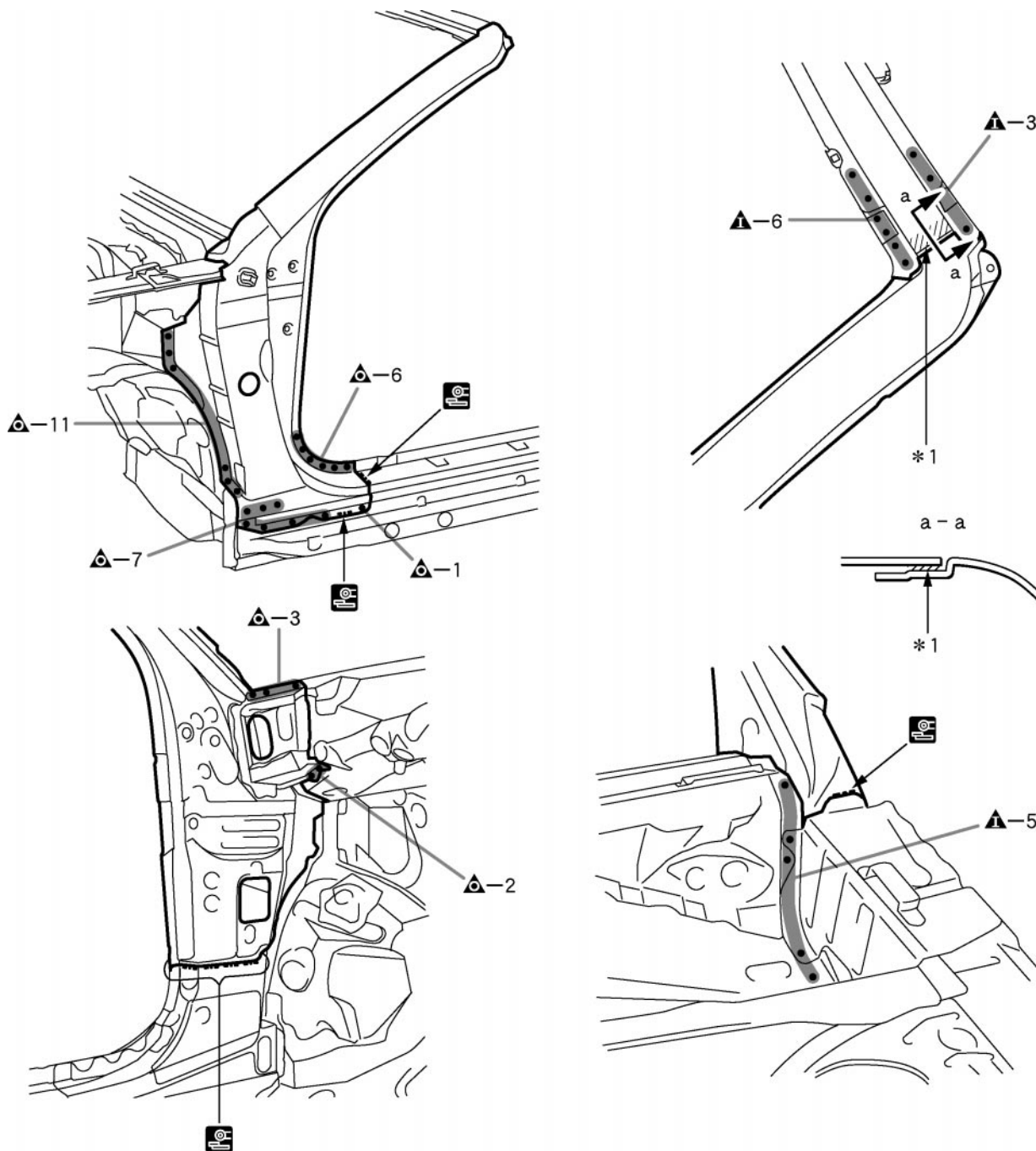
REPLACEMENT

With the cowl top side reinforcement and front body pillar lower gusset removed.



F17016A

REMOVAL



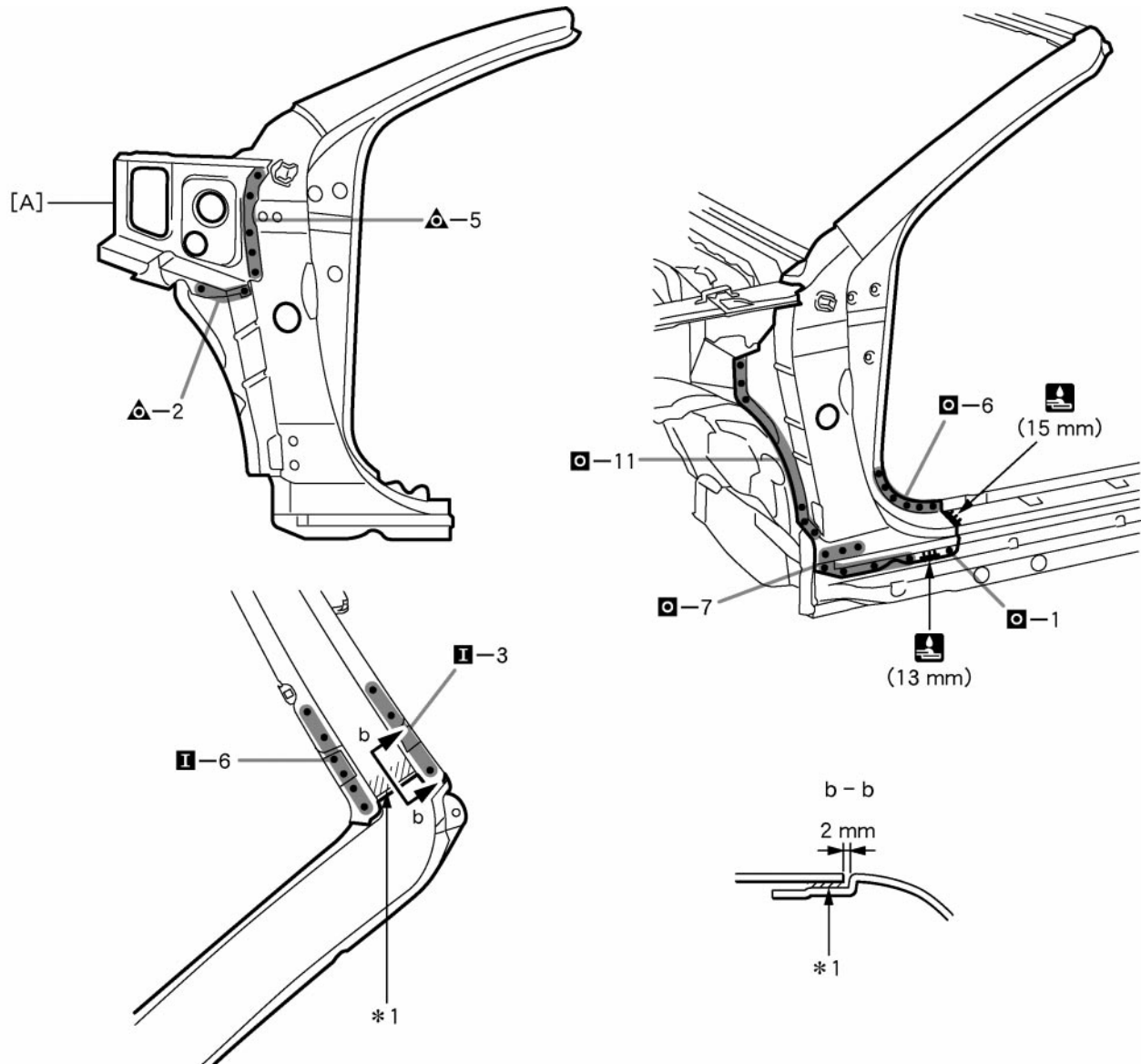
F17016

POINT

1 *1 in illustration above indicates where the adhesive is.

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F17017

POINT

- 1 Remove the [A] from the new parts of front body pillar.
- 2 Inspect the fitting of the front fender, front door and windshield glass, etc., before welding, since this affects the appearance of the finish.
- 3 Apply adhesive (3M™ Automix™ Panel Bonding Adhesive 08115) to the area indicated by *1 in illustration.

HINT:

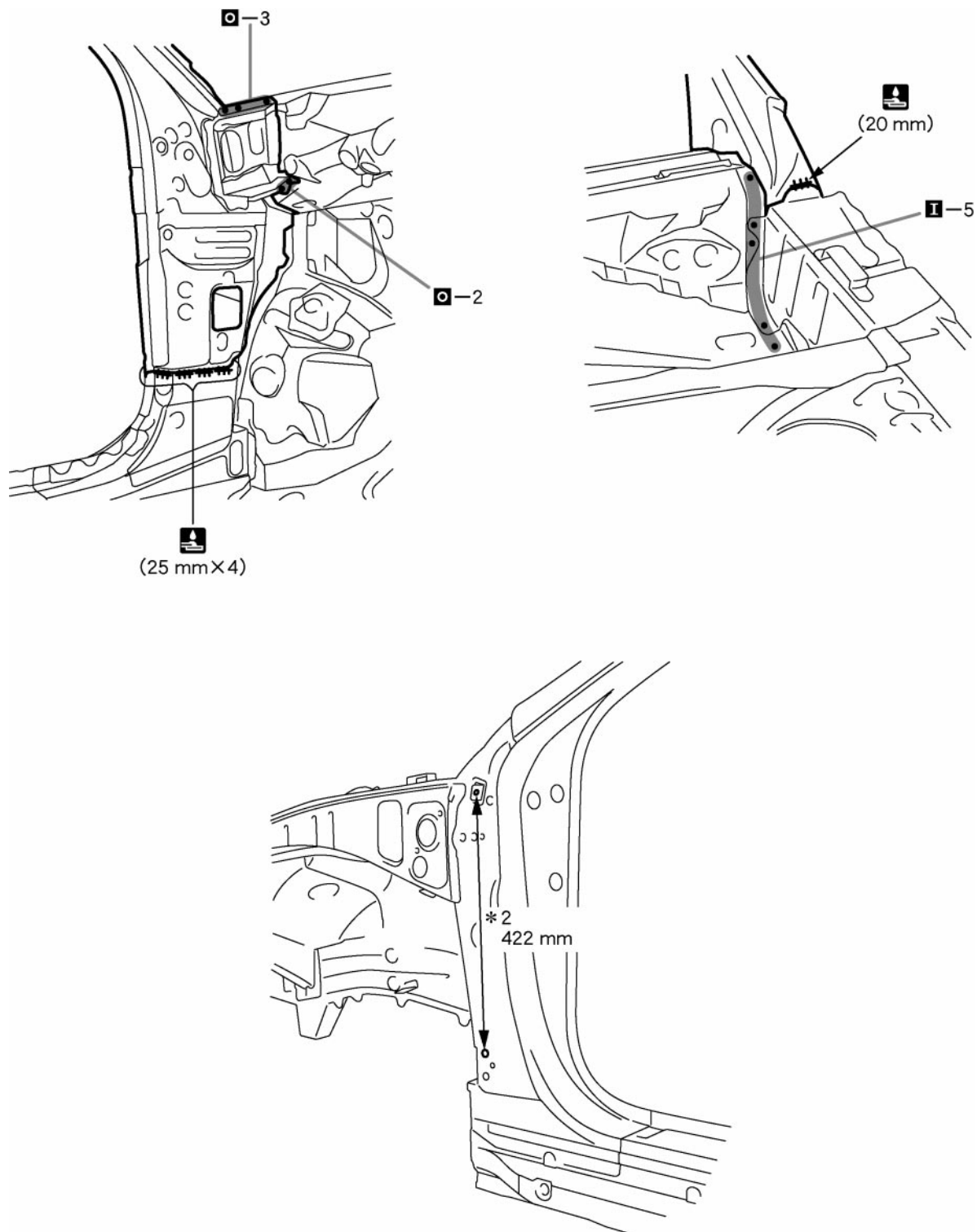
- 1) Apply enough adhesive for the panels to stick to each other.

PART NAME

[A] Front Body Pillar Lower Gusset

13 mm (0.51 in.)

15 mm (0.59 in.)



F17018

POINT

1 *2: Reference value.

20 mm (0.79 in.)

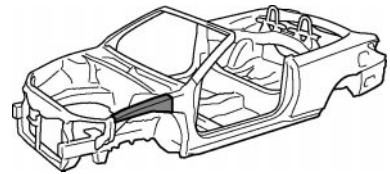
25 mm (0.98 in.)

422 mm (16.61 in.)

FRONT APRON TO COWL SIDE UPPER MEMBER (ASSY)

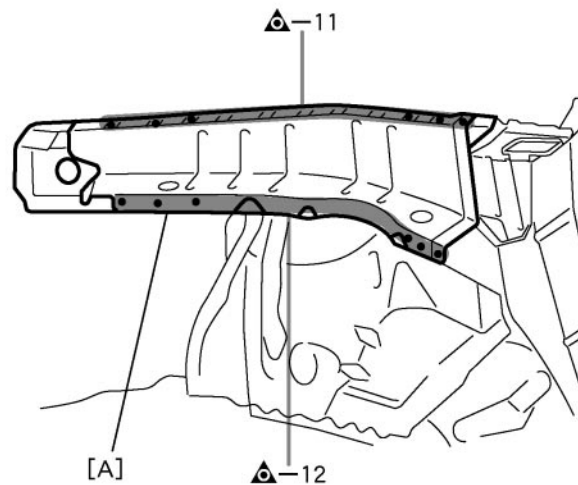
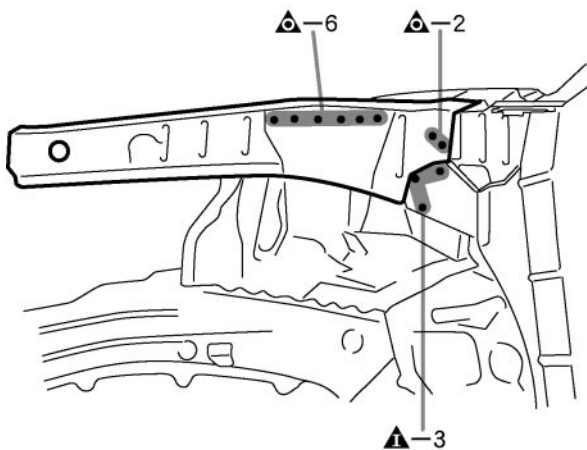
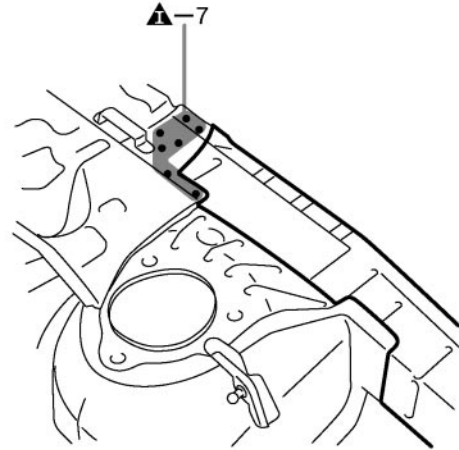
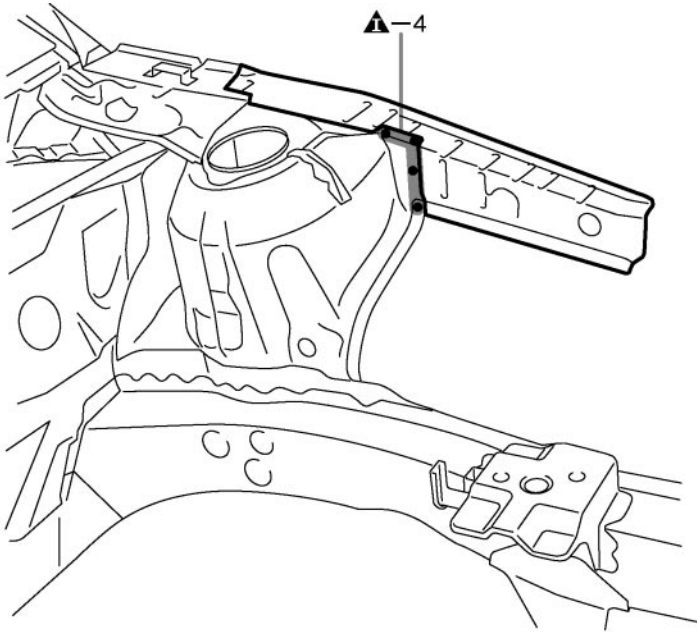
REPLACEMENT

With the front fender front apron and front body pillar lower gusset removed.



F16829B

REMOVAL



F16829

POINT

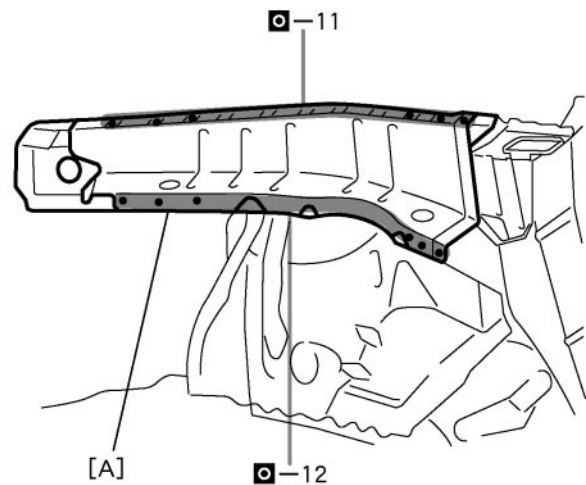
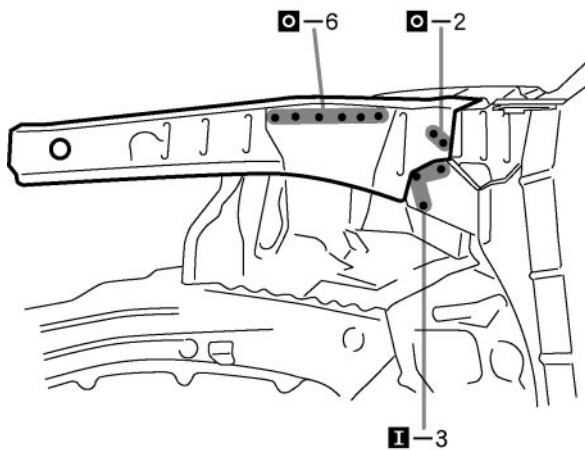
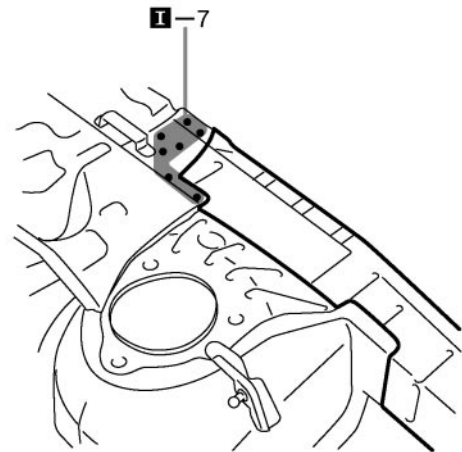
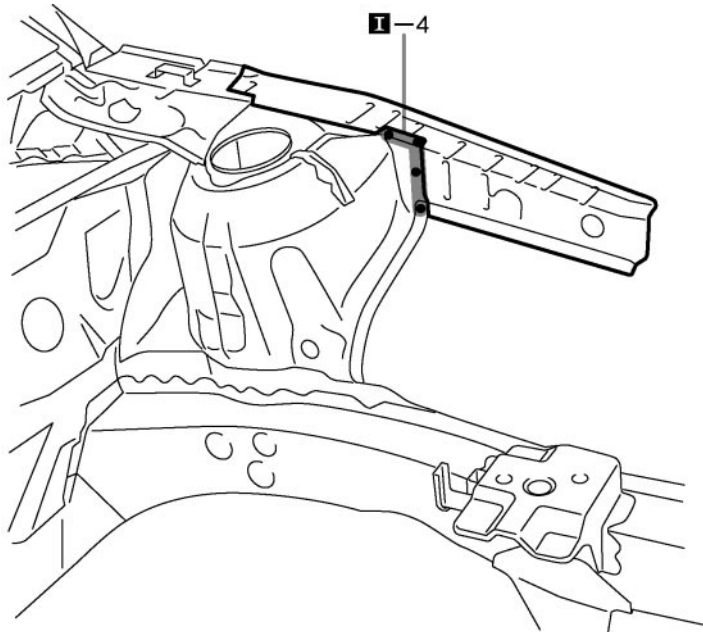
- 1 After remove the [A], remove the front apron to cowl side upper member.

PART NAME

[A] Front Apron To Cowl Side Lower Front Member

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F16830

POINT

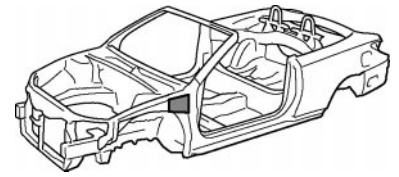
- 1 Inspect the fitting of the front fender and hood, etc., before welding, since this affects the appearance of the finish.

PART NAME

[A] Front Apron To Cowl Side Lower Front Member

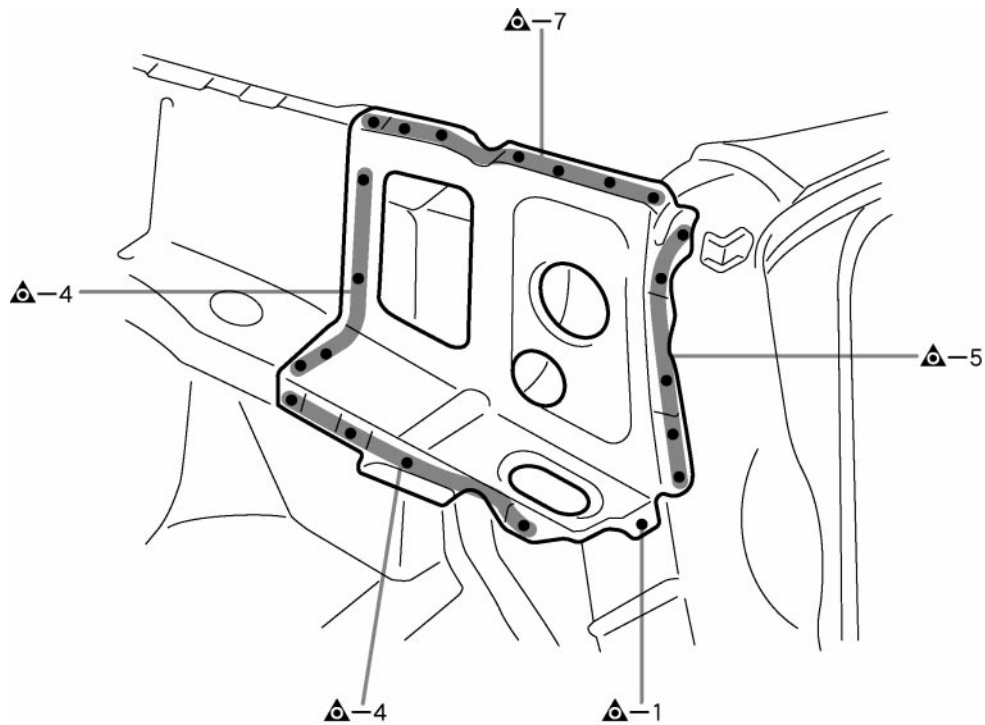
**FRONT BODY PILLAR LOWER GUSSET
(ASSY)**

REPLACEMENT



F16840B

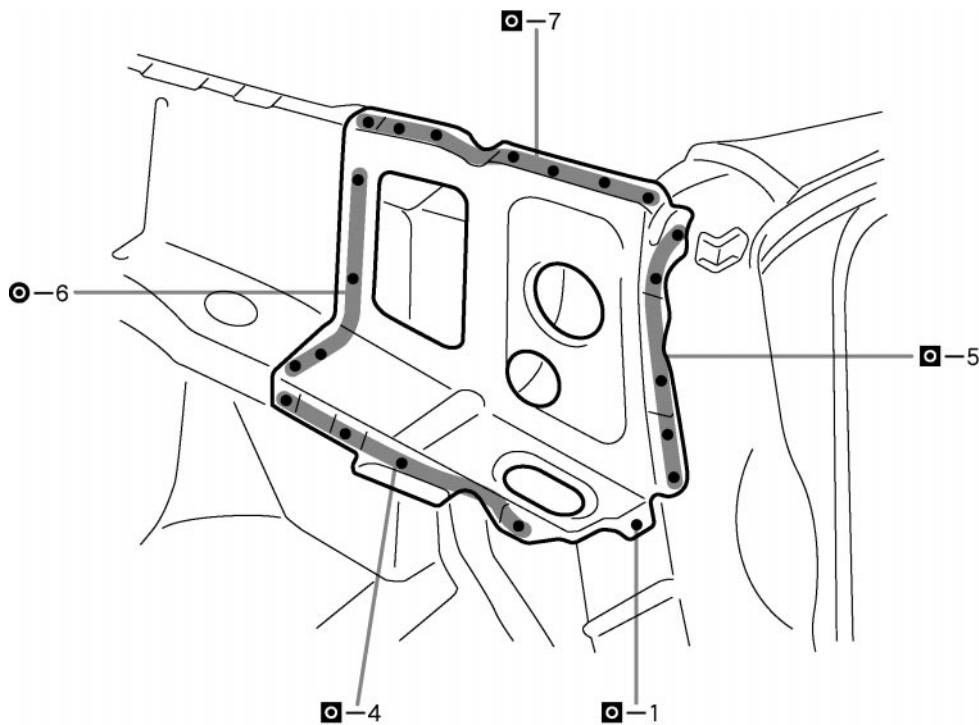
REMOVAL



F16840

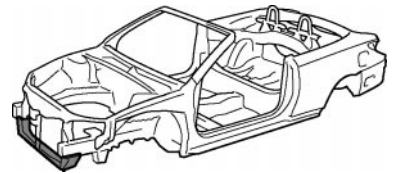
INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



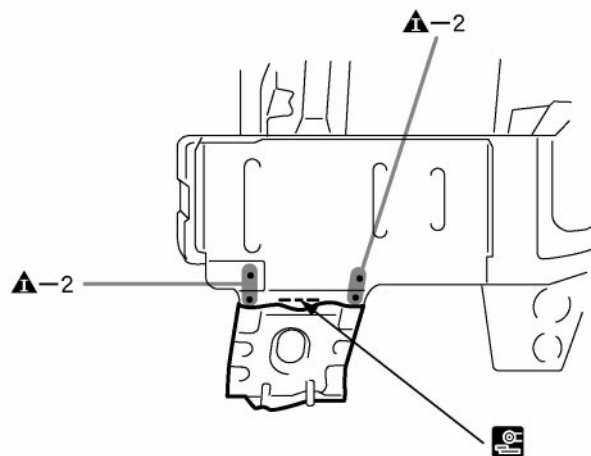
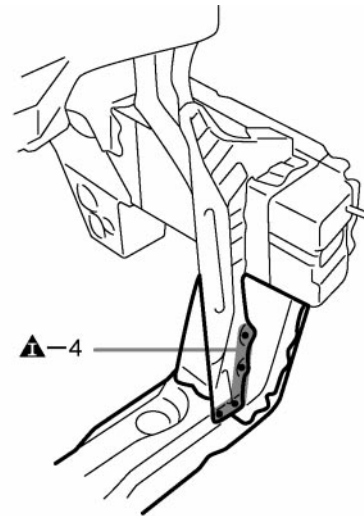
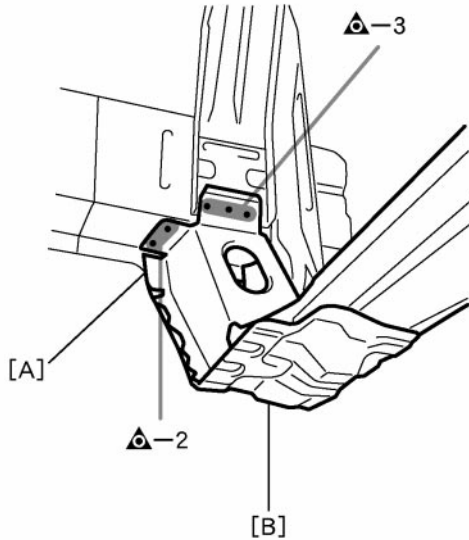
FRONT CROSSMEMBER (ASSY)

REPLACEMENT



F16823B

REMOVAL



F16823

POINT

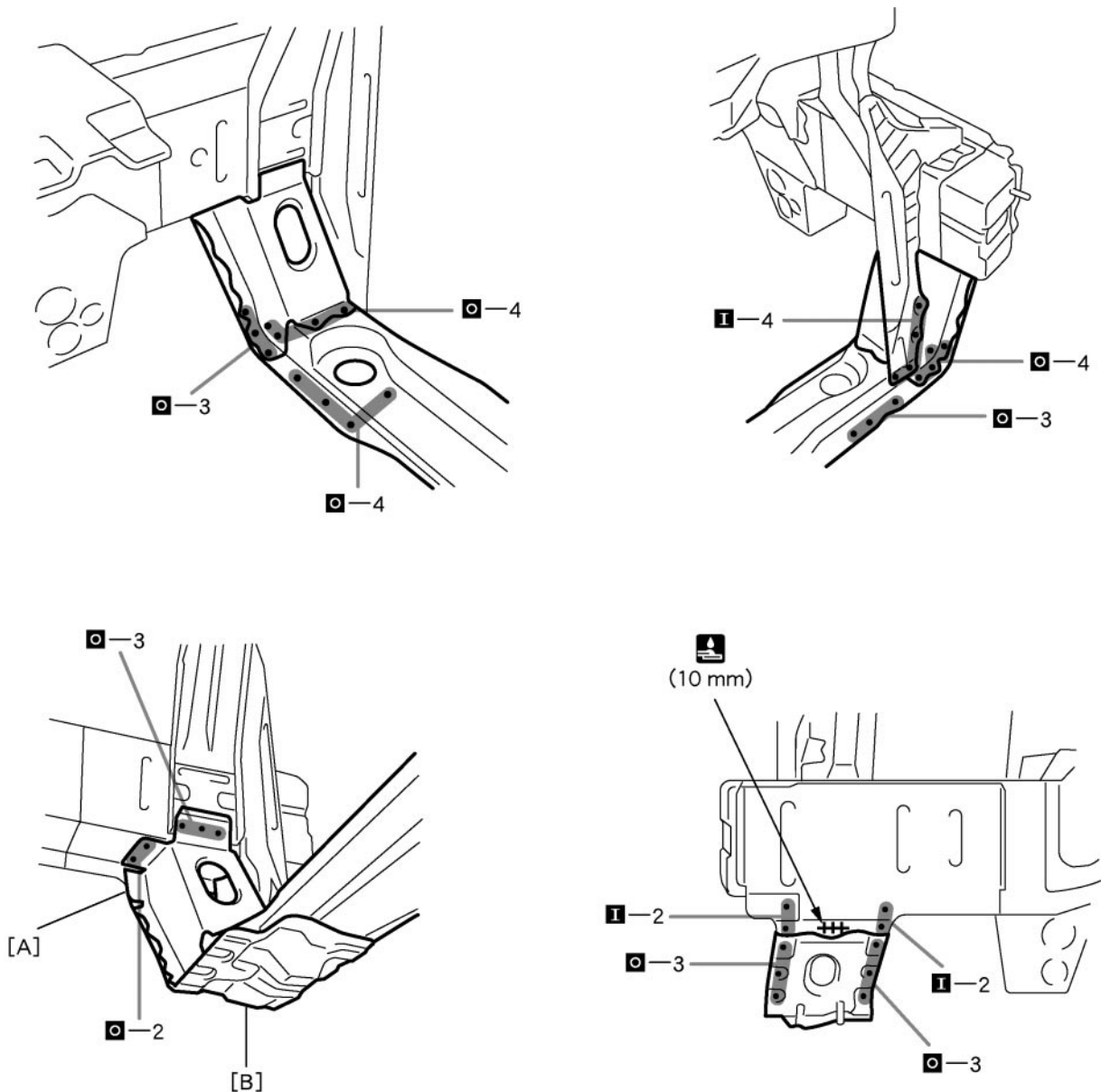
- 1 Remove the [A] and [B] at the same time.

PART NAME

[A] Front Crossmember No.1 Reinforcement [B] Front Crossmember Lower Reinforcement

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.

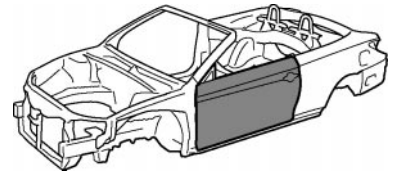


F16824

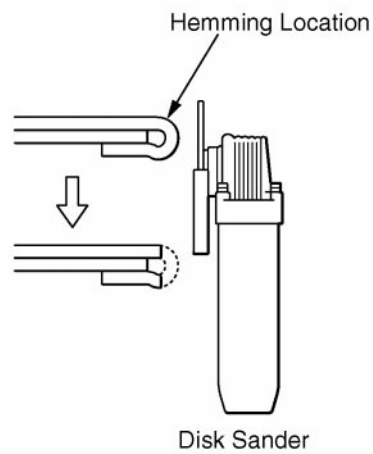
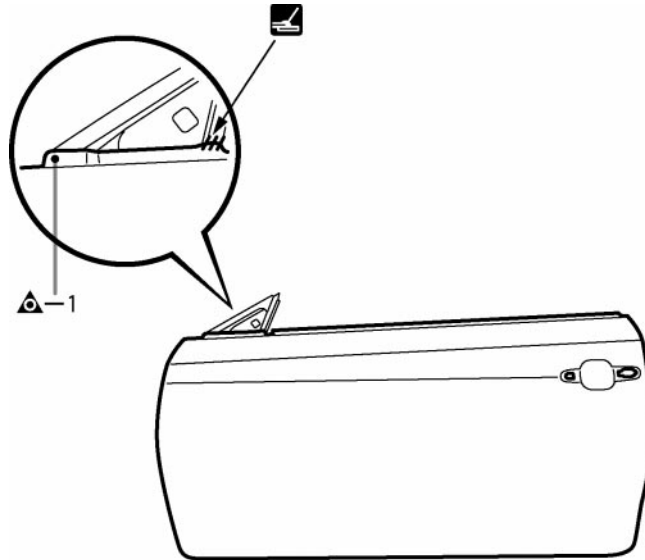
PART NAME

[A] Front Crossmember No.1 Reinforcement [B] Front Crossmember Lower Reinforcement

10 mm (0.39 in.)

FRONT DOOR OUTER PANEL (ASSY)**REPLACEMENT**

F16846B

REMOVAL

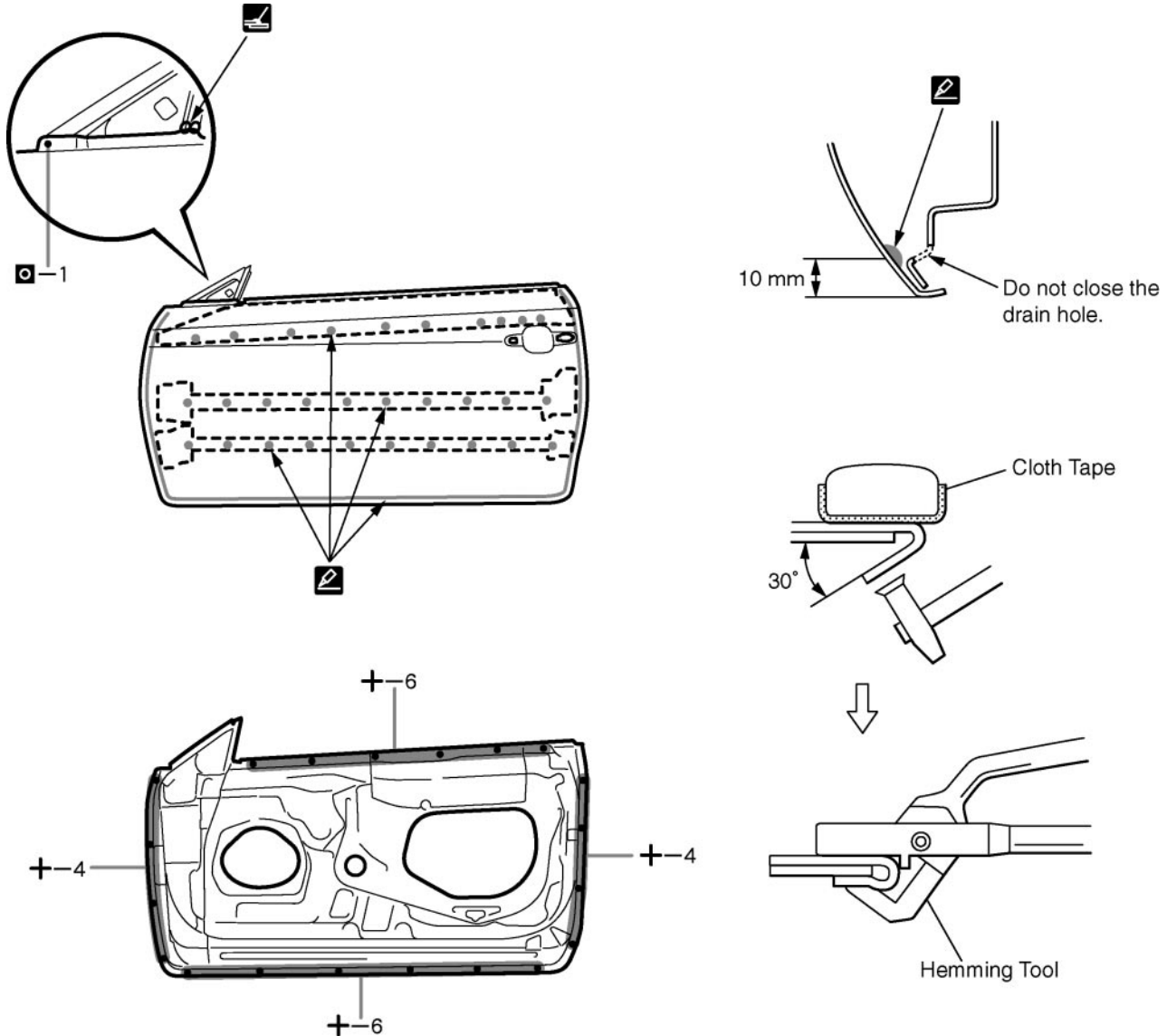
F16846

POINT

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

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F16847

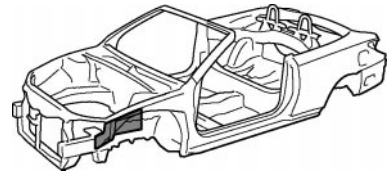
POINT

- Before temporarily installing the new parts, apply body sealer to the reinforcement, side impact protection beam and back side of the new parts.
HINT:
 - Apply sealer evenly about 10 mm (0.39 in.) from the flange and 3 mm (0.12 in.) in diameter to the outer panel and apply just enough sealer for the reinforcement and side impact protection beam to make contact.
- Bend the flange hem about 30° with a hammer and dolly, then fasten tightly with a hemming tool.
HINT:
 - Perform hemming in three step, being careful not to warp the panel.
 - If a hemming tool cannot be used, hem with a hammer and dolly.

FRONT FENDER FRONT APRON (ASSY)

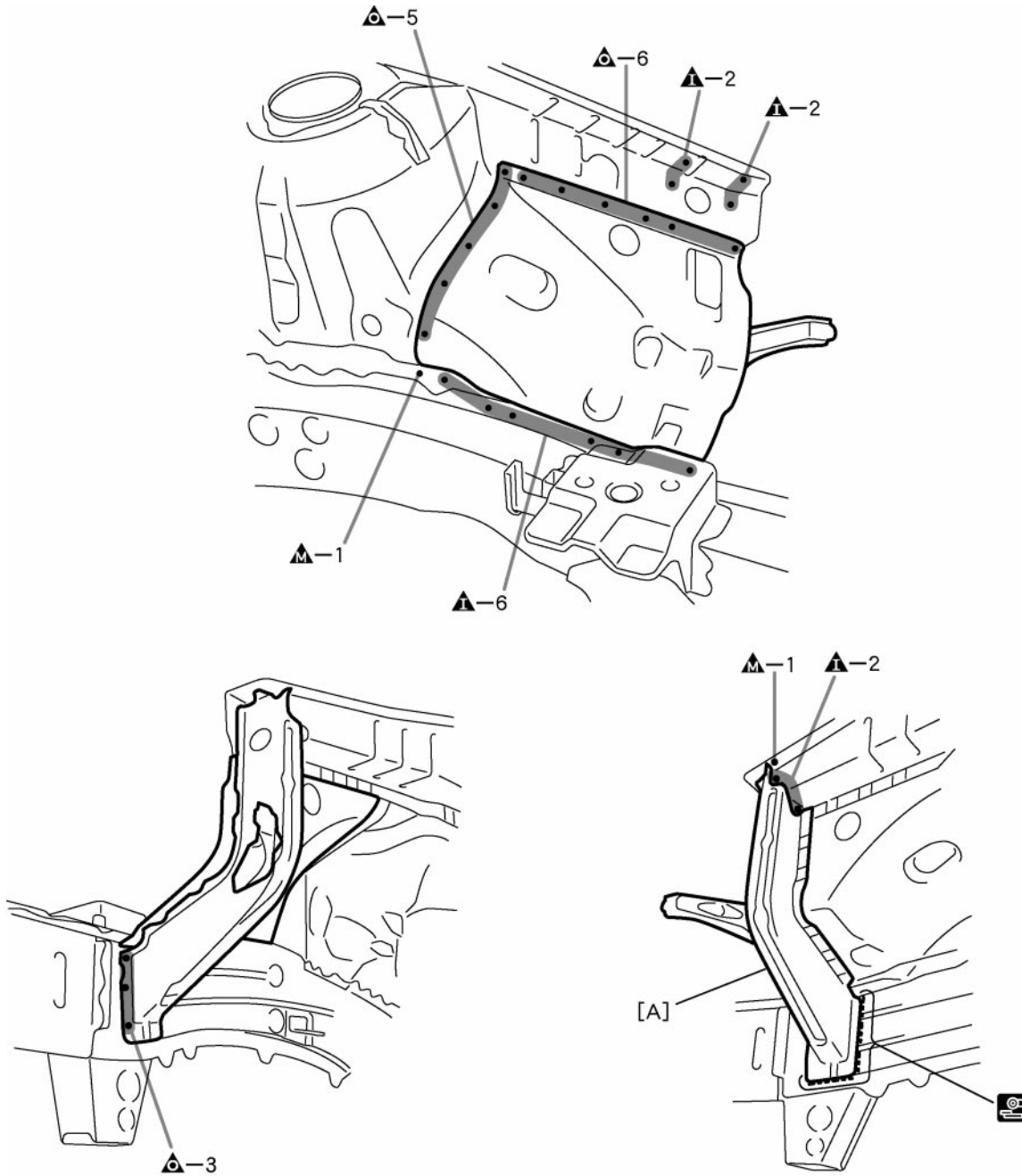
REPLACEMENT

With the radiator upper support removed.



F16827B

REMOVAL



F16827

POINT

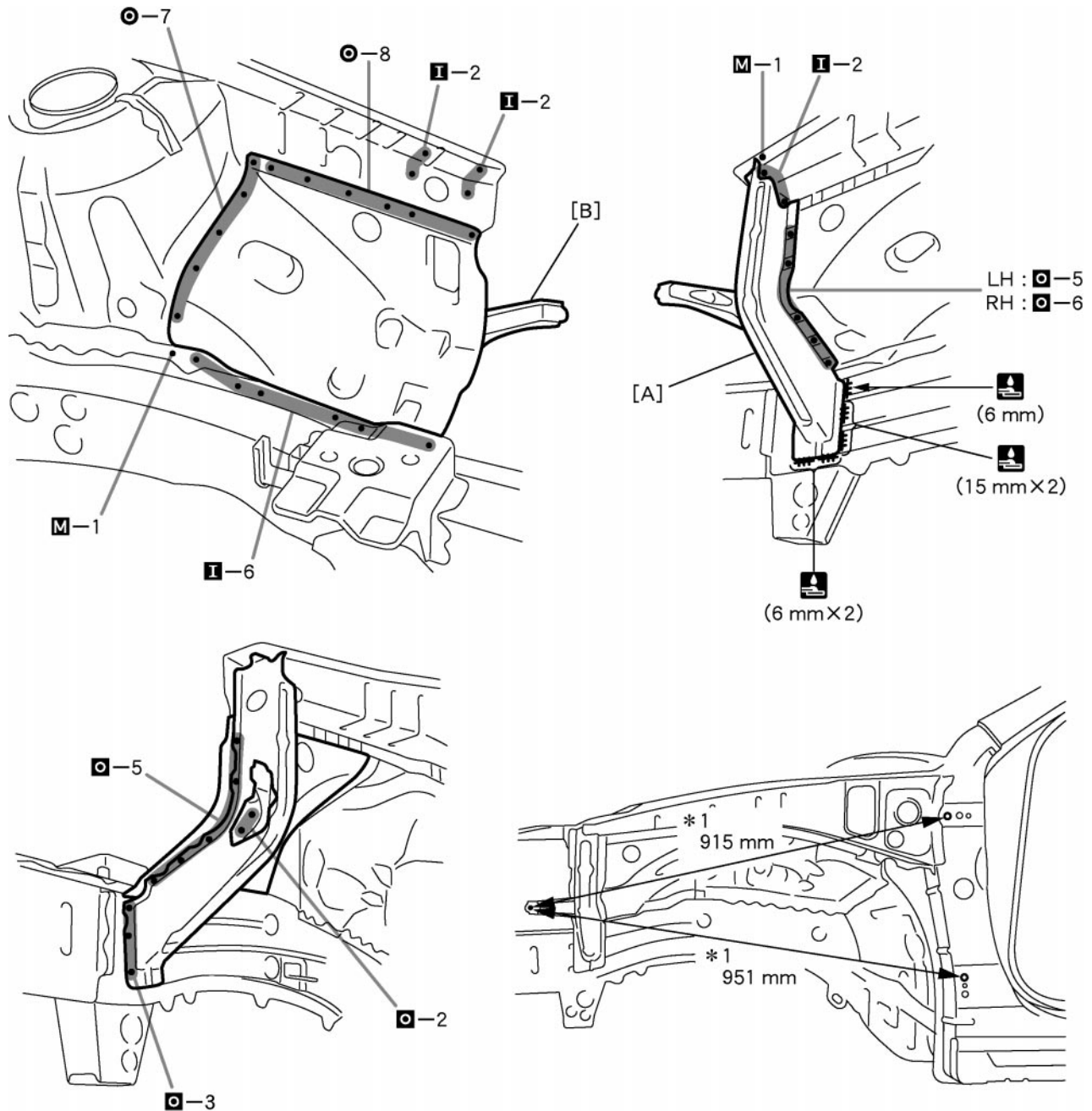
1 Remove the [A] at the same time.

PART NAME

[A] Front Fender Apron Front Extension

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F17013

POINT

1 *1: Reference value

PART NAME

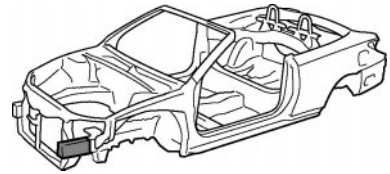
[A] Front Fender Apron Front Extension
6 mm (0.24 in.) 15 mm (0.59 in.)

[B] Fender Apron Plate
915 mm (36.02 in.) 951 mm (37.44 in.)

FRONT SIDEMEMBER (CUT-P)

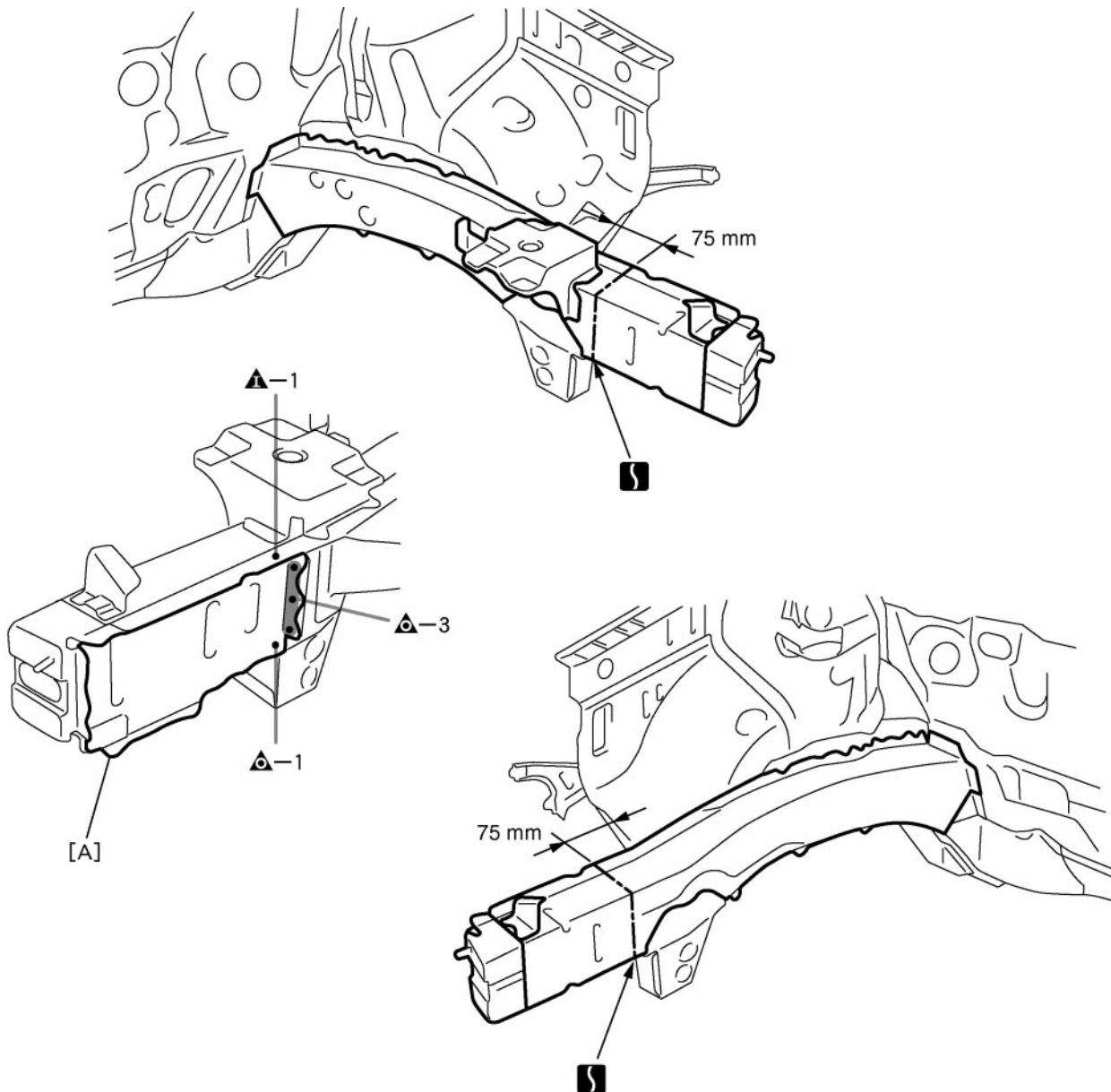
REPLACEMENT

With the radiator support upper brace, radiator side support and front crossmember removed.



F16833B

REMOVAL



F16833

POINT

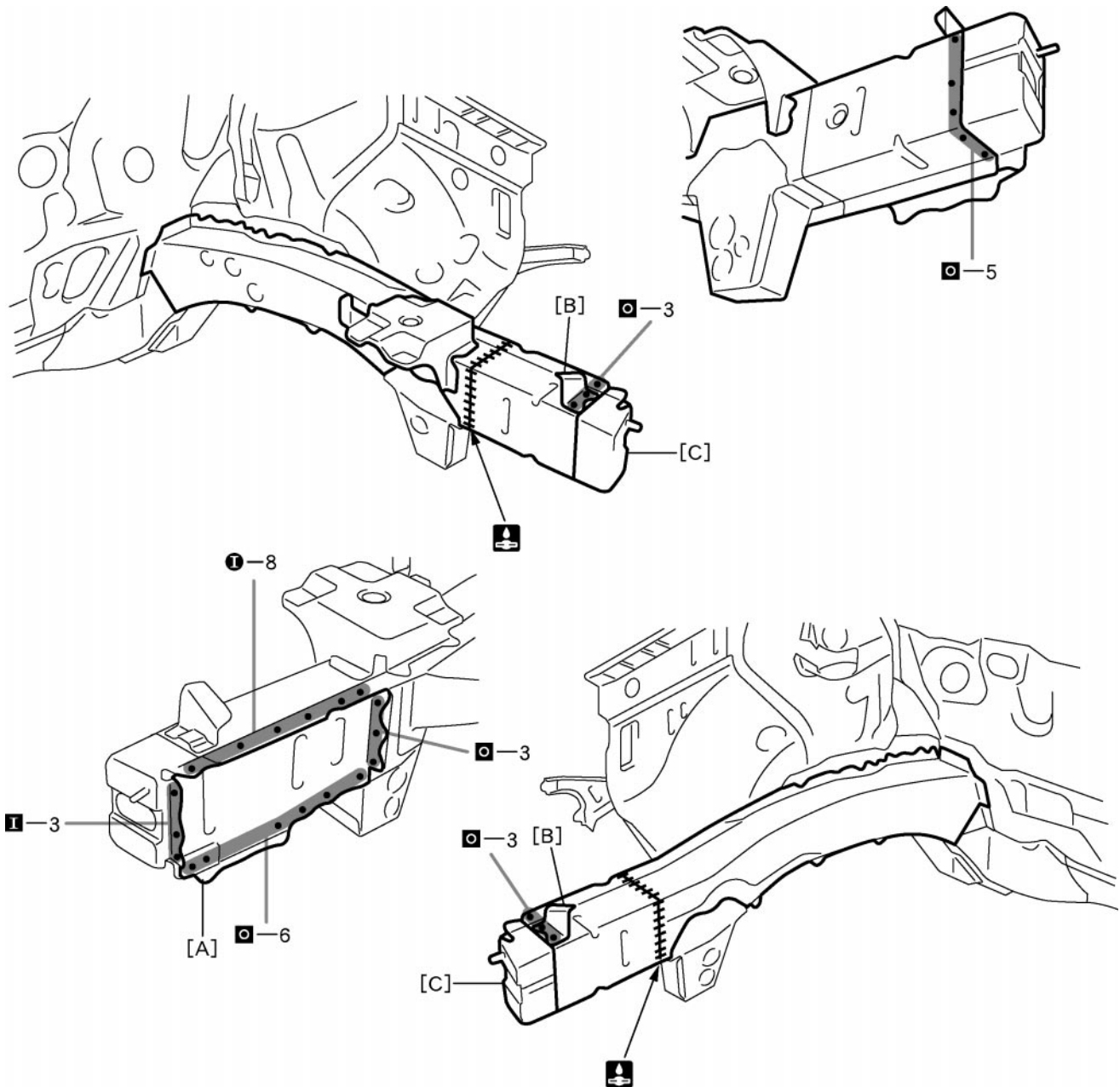
1 Remove the [A] at the same time.

PART NAME

[A] Front Sidemember Extension
75 mm (2.95 in.)

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



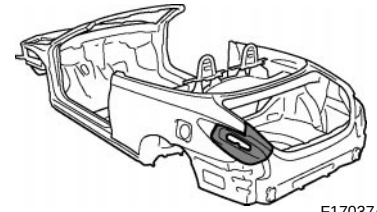
F16834

PART NAME

- [A] Front Sidemember Extension [B] Front Crossmember Side Gusset
 [C] Front Bumper Mounting Reinforcement

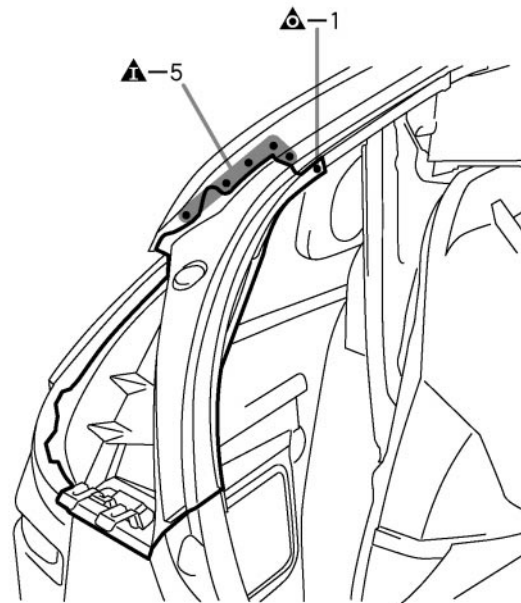
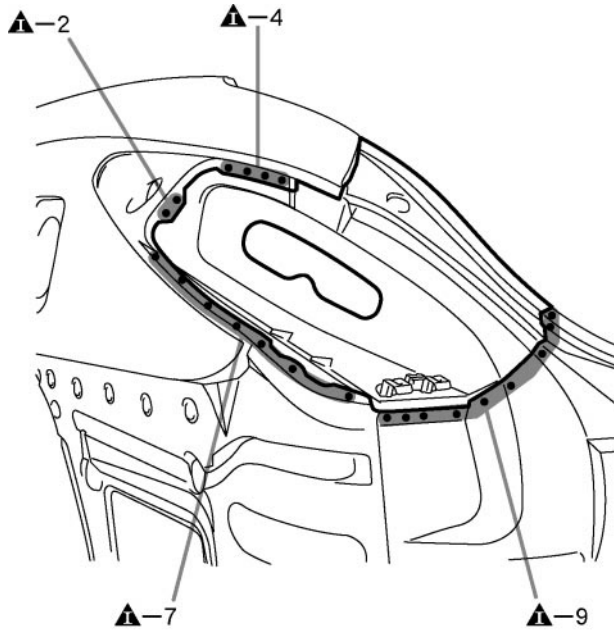
LUGGAGE COMPARTMENT OPENING TROUGH (ASSY)

REPLACEMENT



F17037A

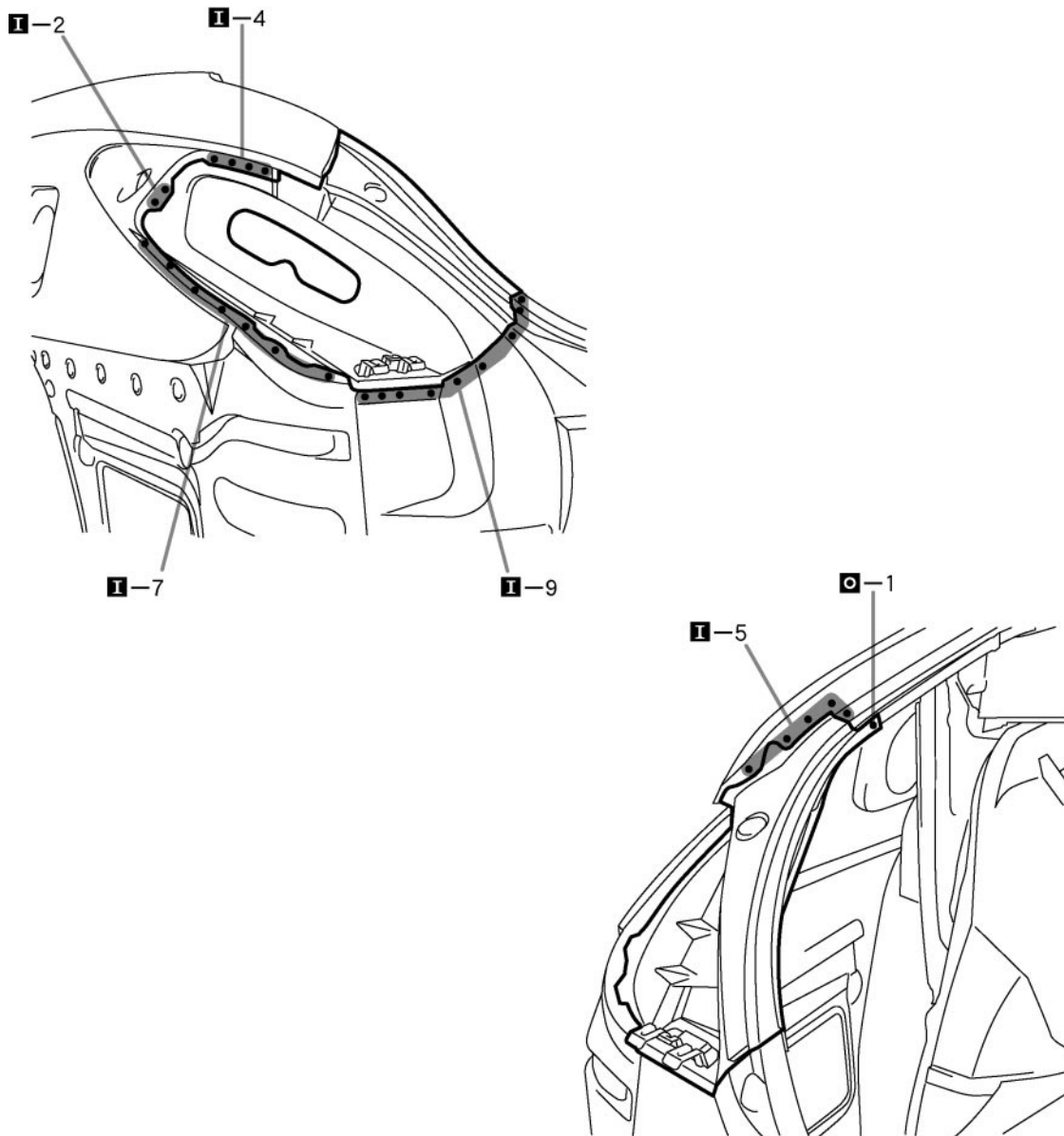
REMOVAL



F17037

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.

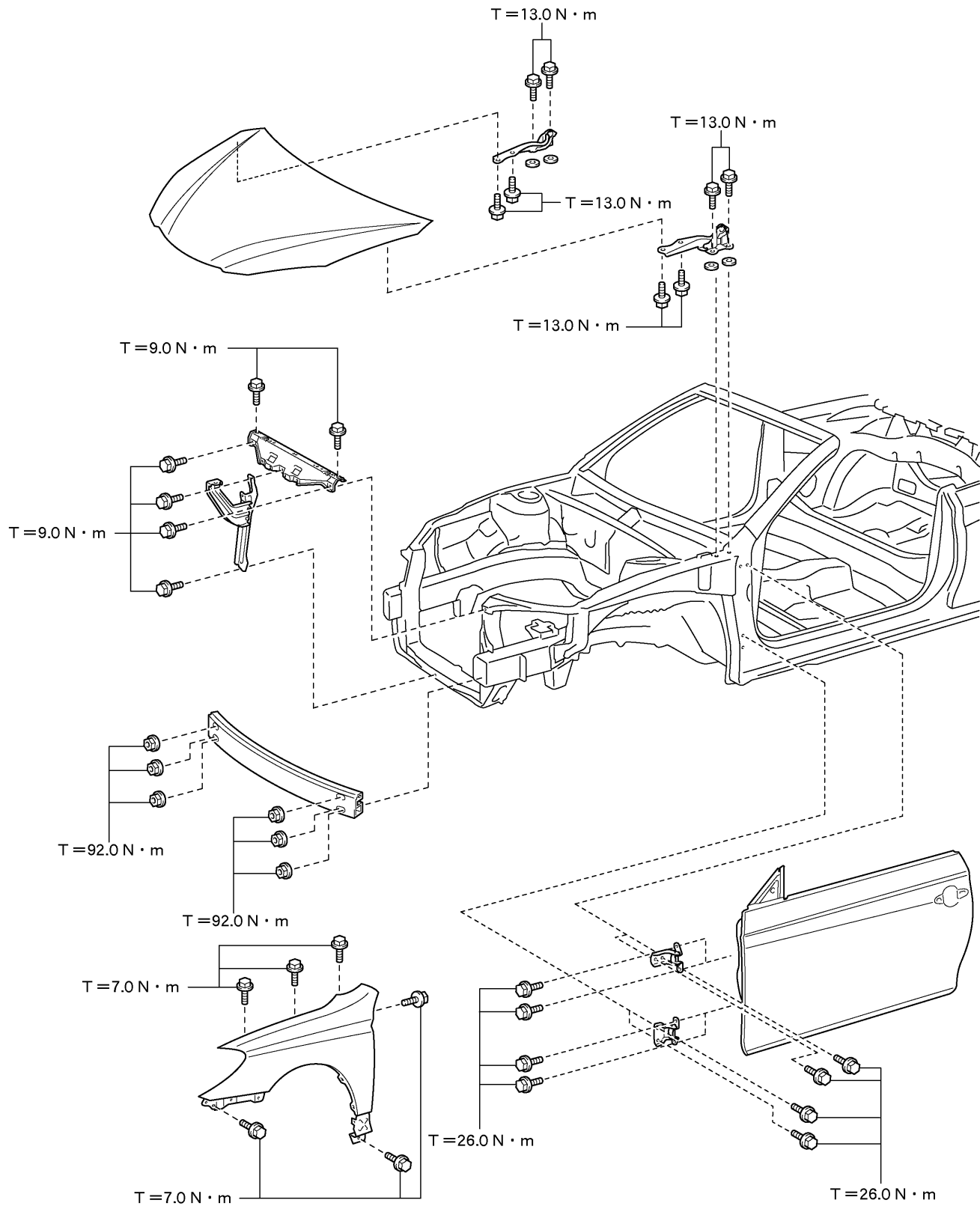


F17038

POINT

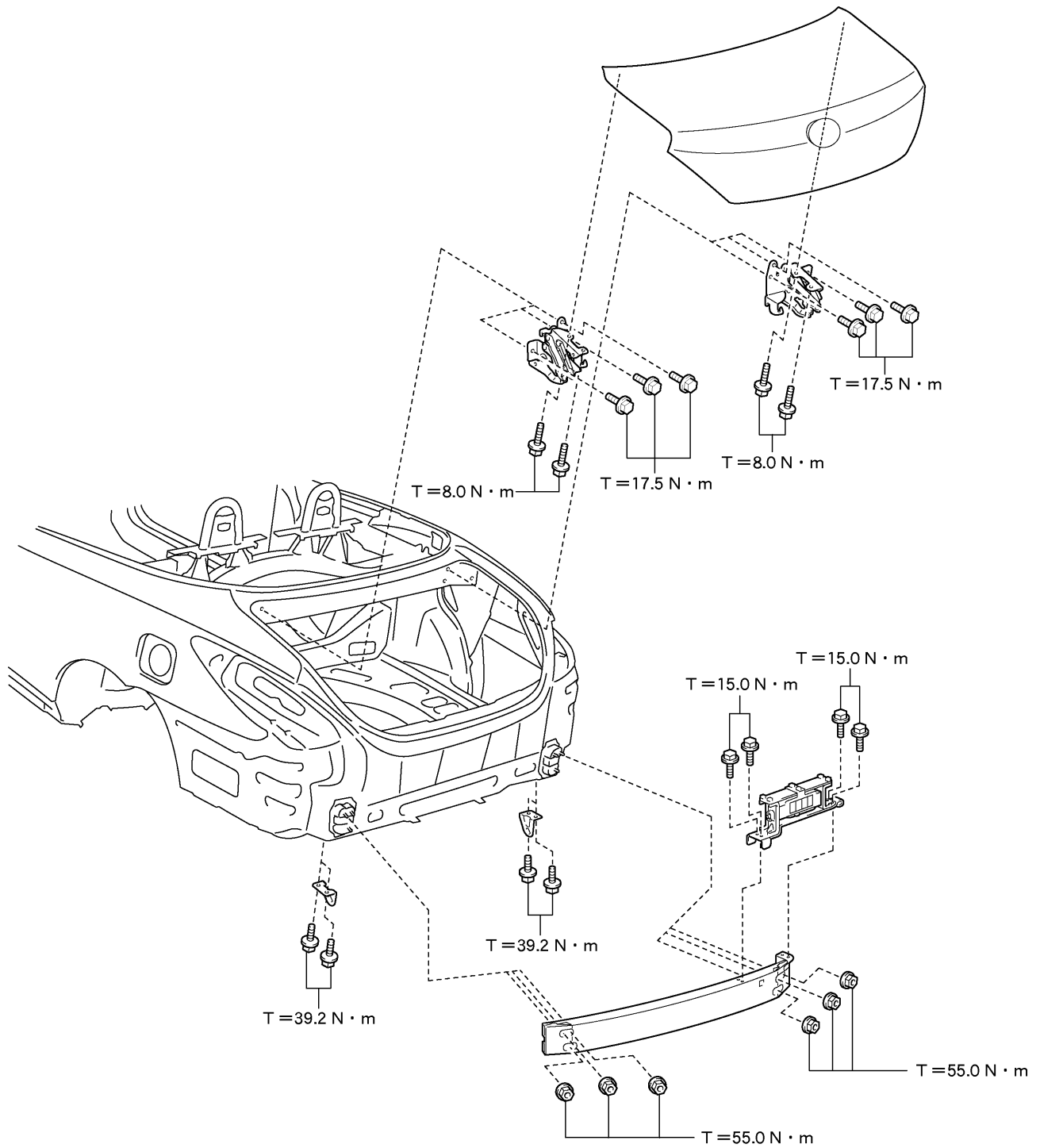
- 1 Inspect the fitting of the luggage compartment door and rear combination light, etc., before welding, since this affects the appearance of the finish.

OUTER PANEL INSTALLATION TORQUE



F17009

7.0 N·m (71 kgf·cm, 62 in·lbf)	9.0 N·m (92 kgf·cm, 80 in·lbf)	13.0 N·m (133 kgf·cm, 10 ft·lbf)
26.0 N·m (265 kgf·cm, 19 ft·lbf)	92.0 N·m (938 kgf·cm, 68 ft·lbf)	—



F17010

8.0 N·m (82 kgf·cm, 71 in·lbf)

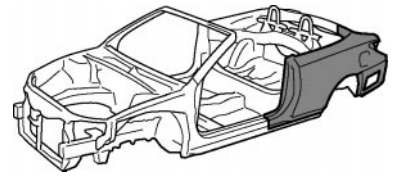
15.0 N·m (153 kgf·cm, 11 ft·lbf)

17.5 N·m (179 kgf·cm, 13 ft·lbf)

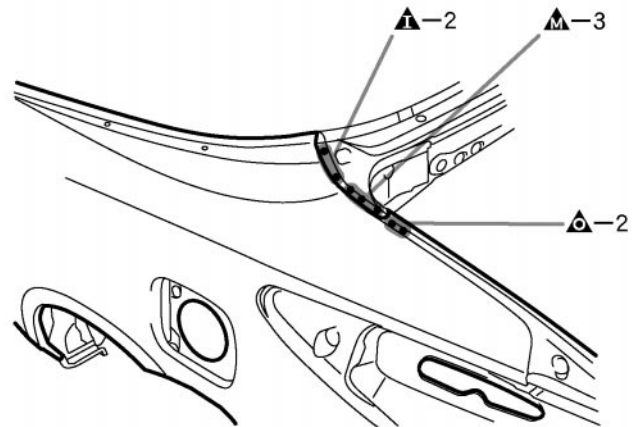
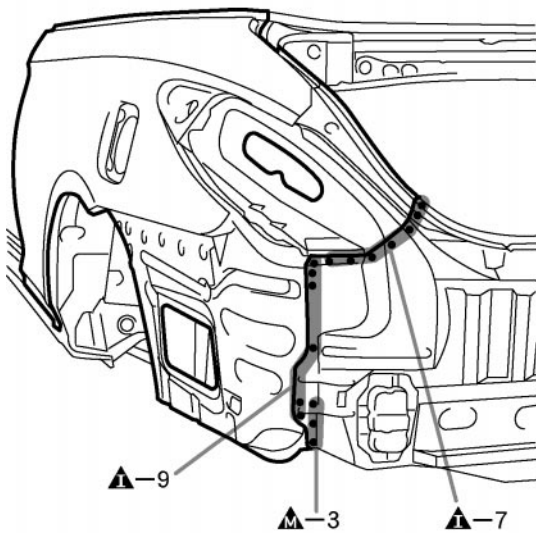
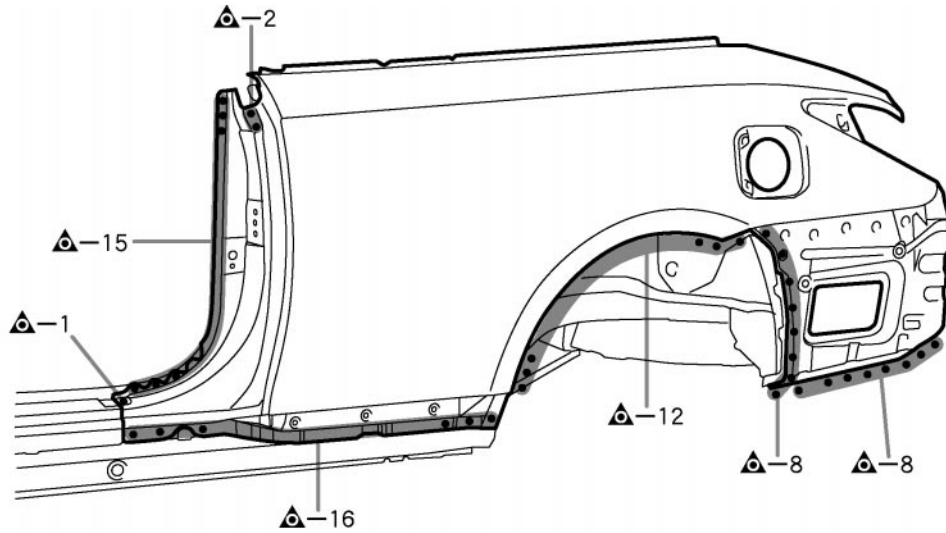
39.2 N·m (400 kgf·cm, 29 ft·lbf)

55.0 N·m (561 kgf·cm, 41 ft·lbf)

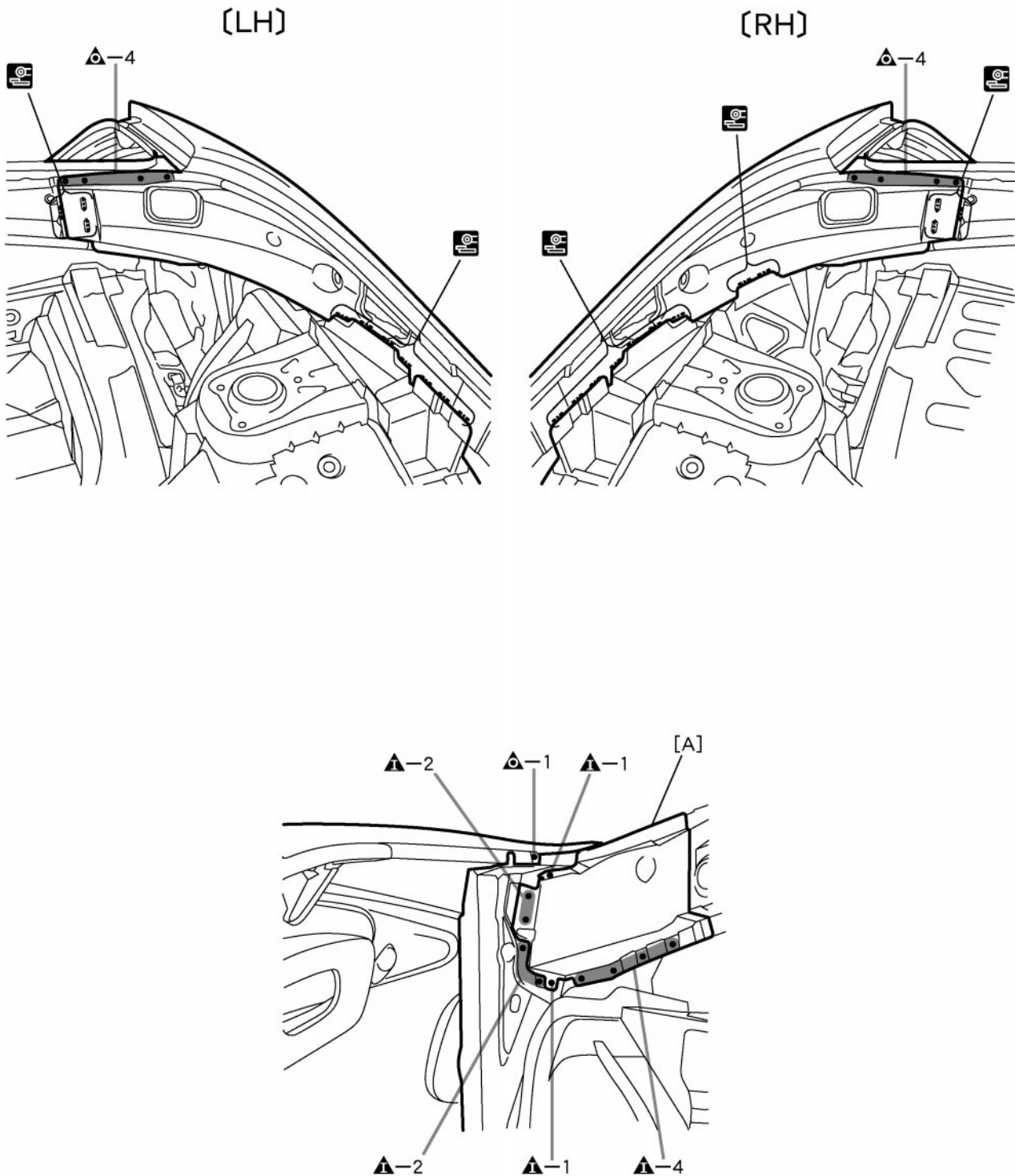
—

QUARTER PANEL (ASSY)**REPLACEMENT**

F17033A

REMOVAL

F17033



F17034

POINT

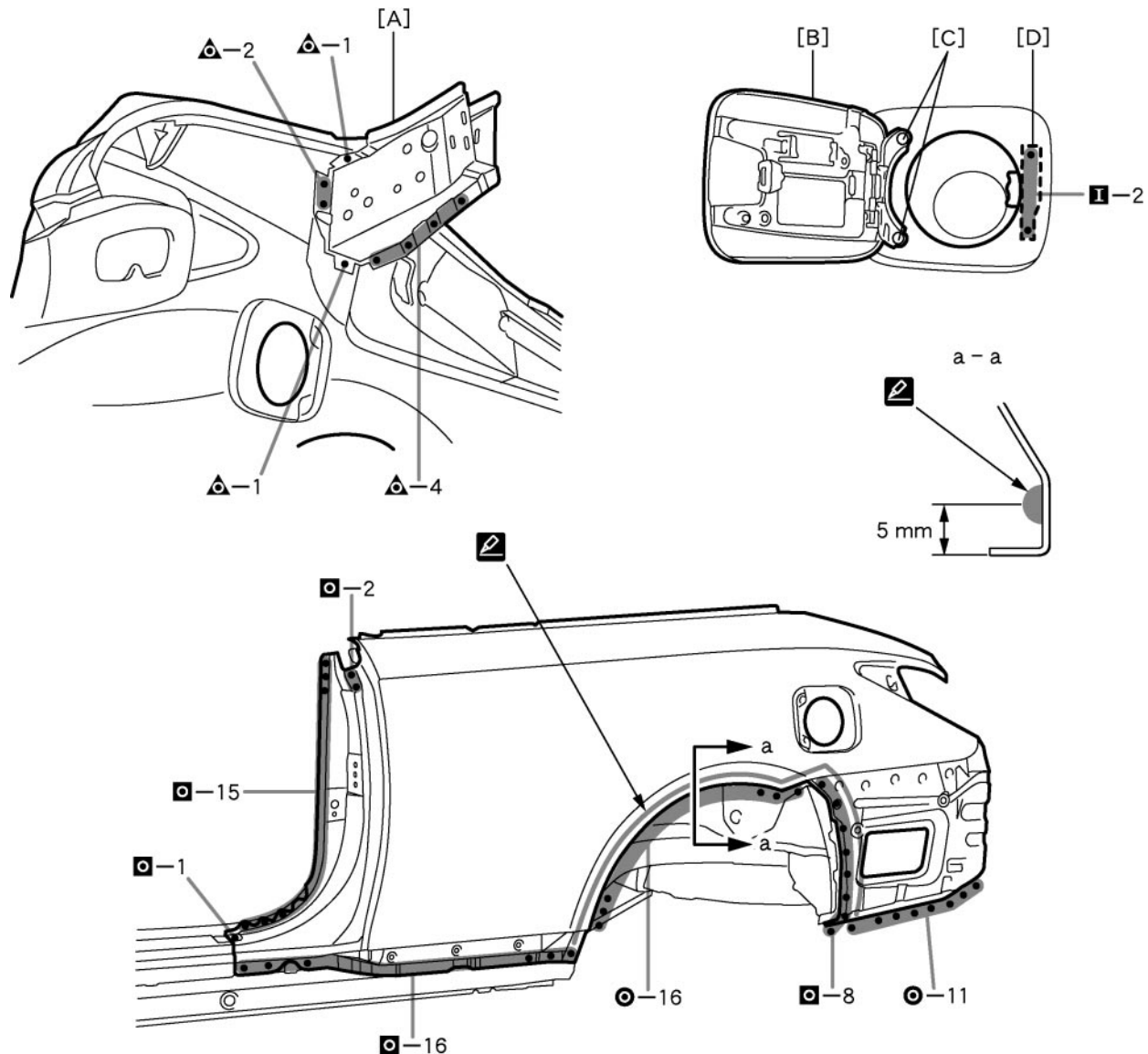
- 1 Leave the [A] to the vehicle side, remove the quarter panel.

PART NAME

[A] Package Tray Bracket

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



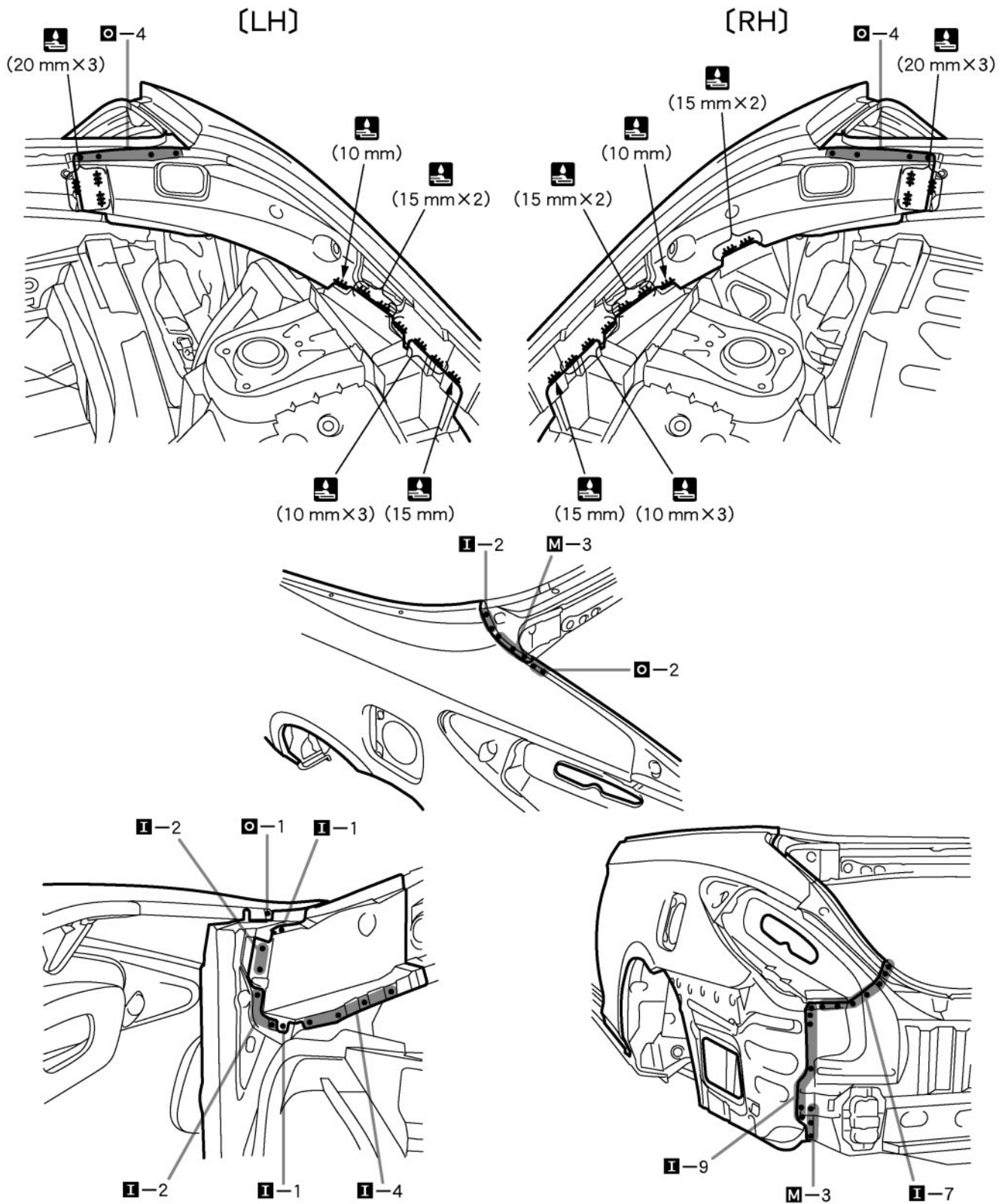
F17035

POINT

- 1 Remove the [A] from the new parts of quarter panel.
- 2 Before temporarily installing the new parts, apply body sealer to the wheel arch.
HINT:
1) Apply body sealer 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 Inspect the fitting of the front door, luggage compartment door and rear combination light, etc., before welding, since this affects the appearance of the finish.

PART NAME

- | | | |
|----------------------------|-----------------------------|-----------------------|
| [A] Package Tray Bracket | [B] Fuel Filler Opening Lid | [C] Waterproof Rivets |
| [D] Quarter Panel Retainer | | |



F17036

10 mm (0.39 in.)

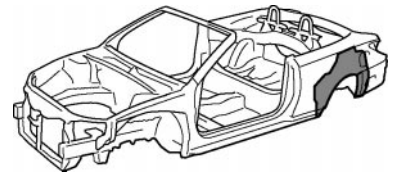
15 mm (0.59 in.)

20 mm (0.79 in.)

QUARTER WHEEL HOUSING OUTER PANEL (ASSY)

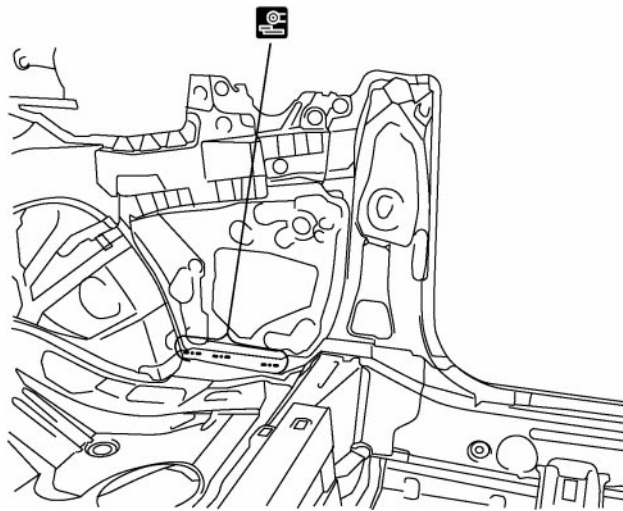
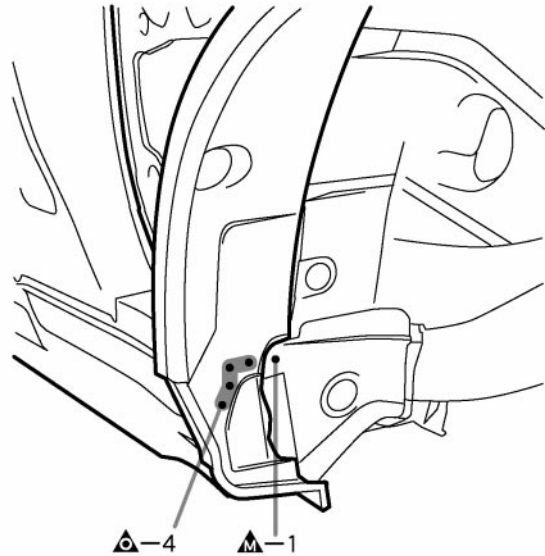
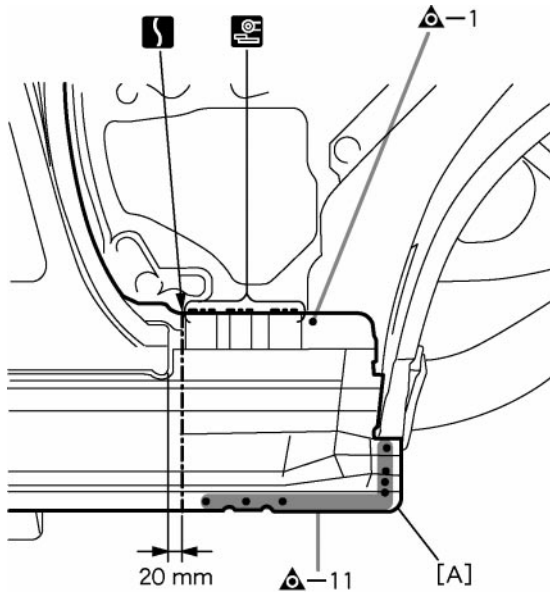
REPLACEMENT

With the quarter panel removed.



F17039A

REMOVAL



F17039

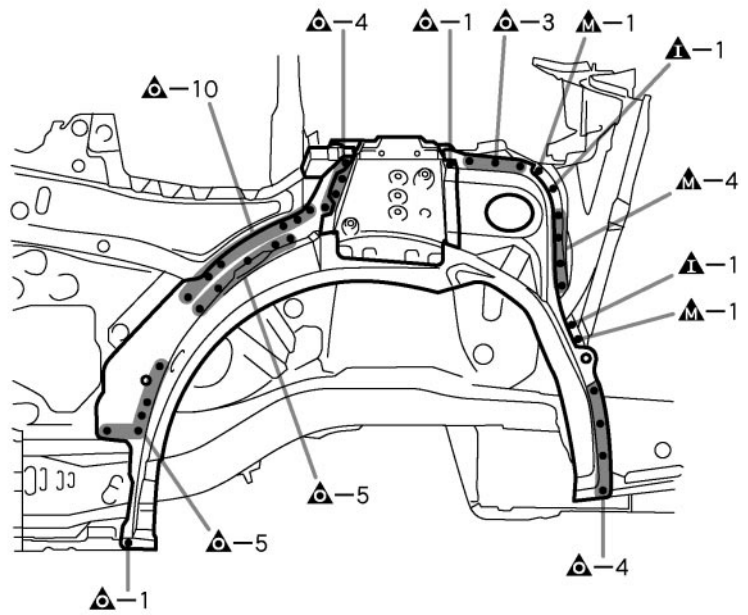
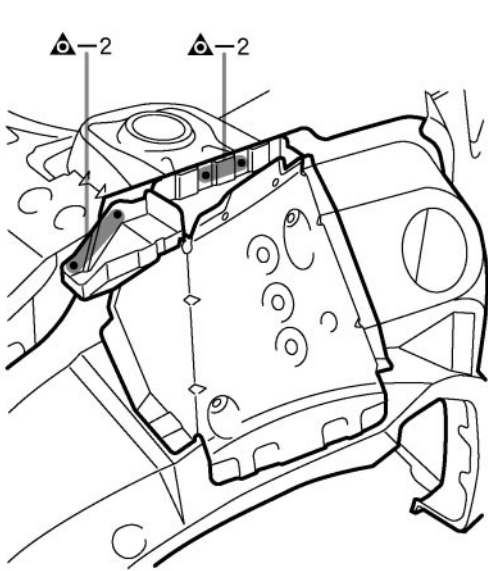
POINT

- 1 After removing the [A] remove the quarter wheel housing outer panel.
- 2 [A]: Reuse

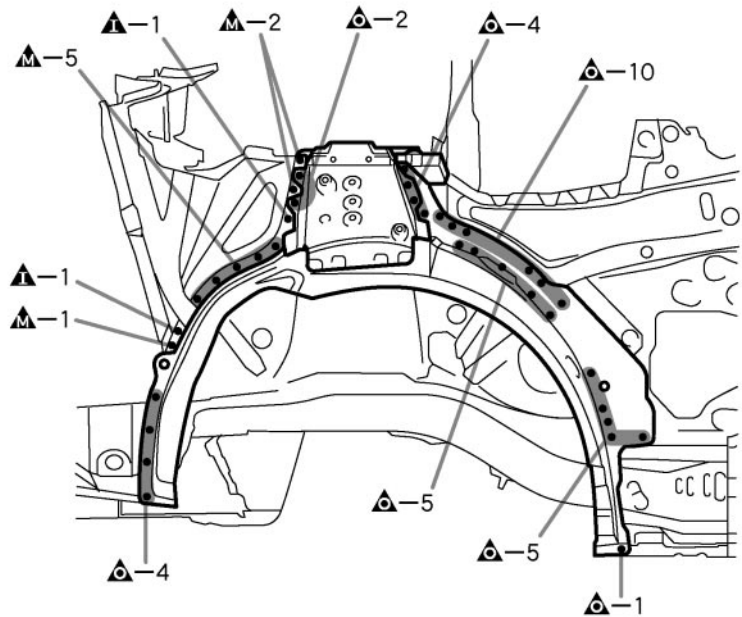
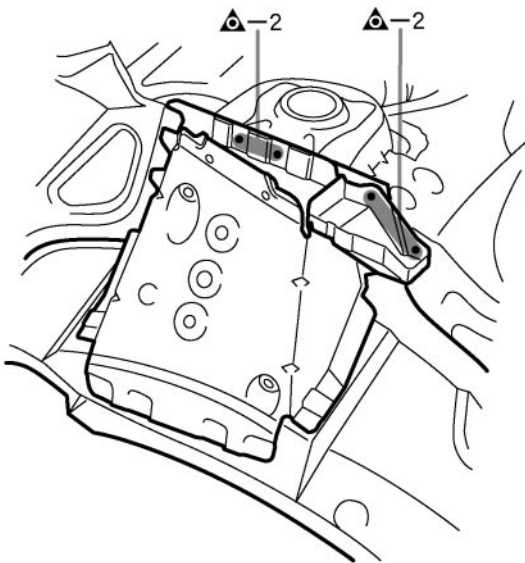
PART NAME

[A] Rocker Outer Panel
20 mm (0.79 in.)

[LH]

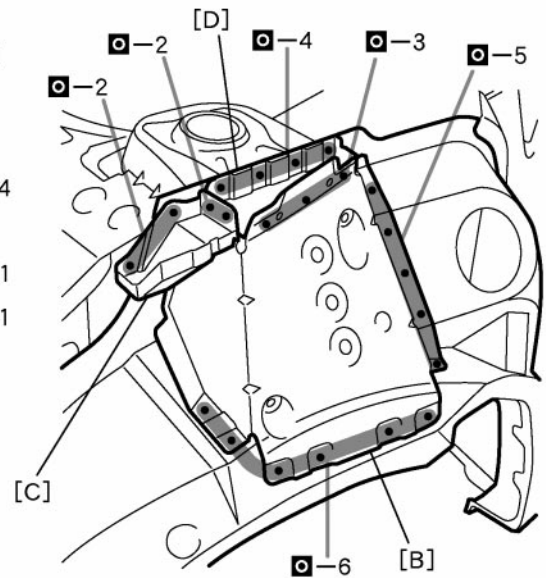
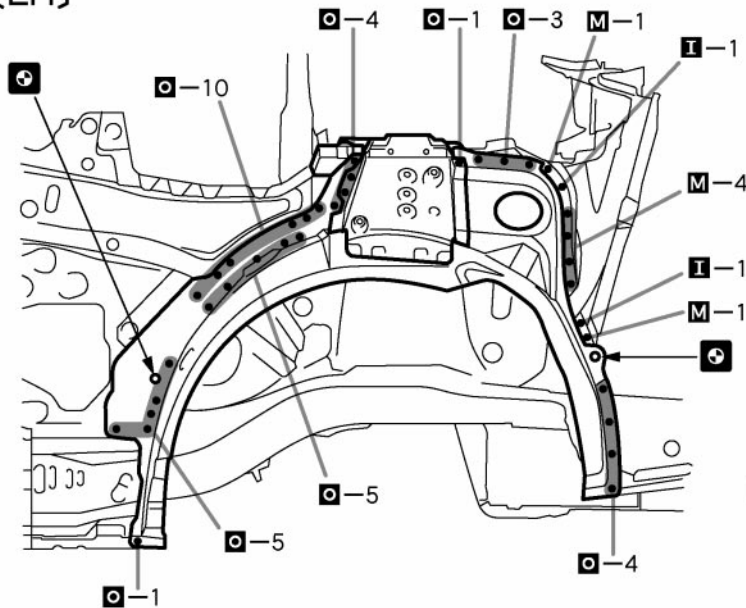
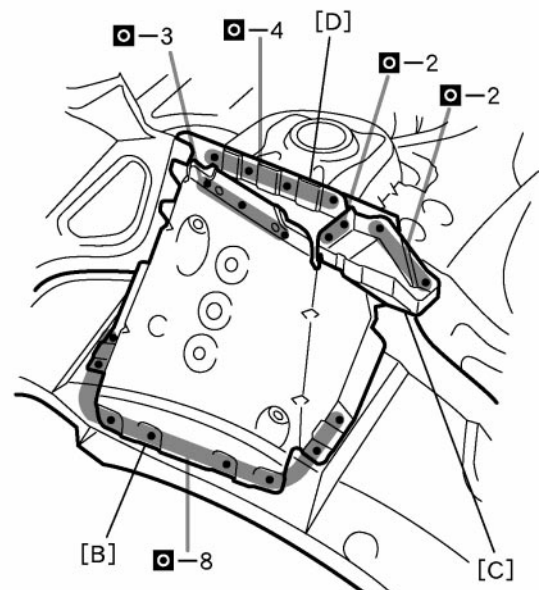
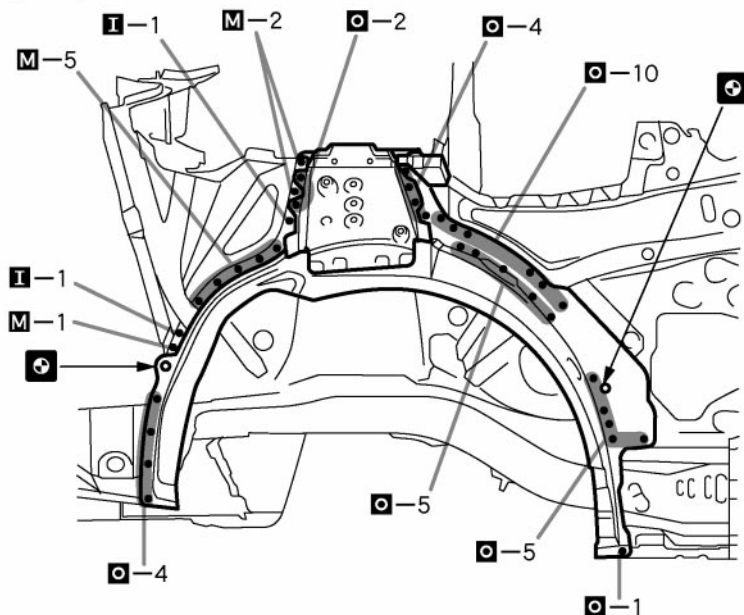


[RH]



INSTALLATION

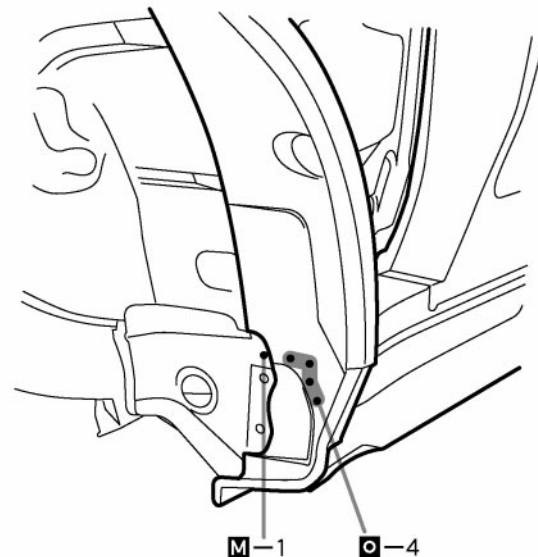
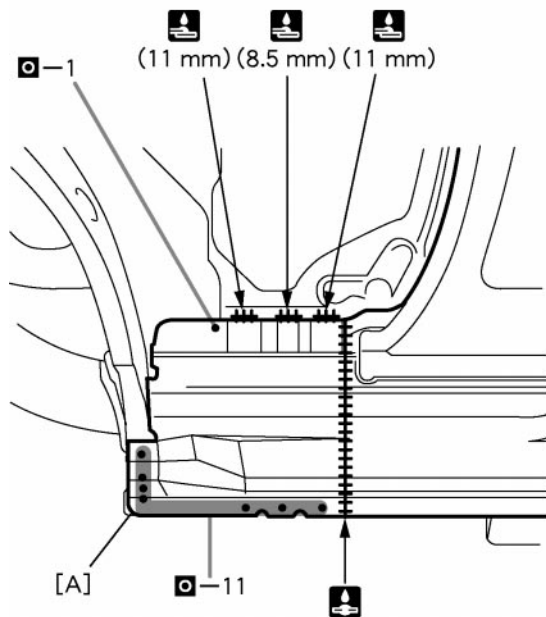
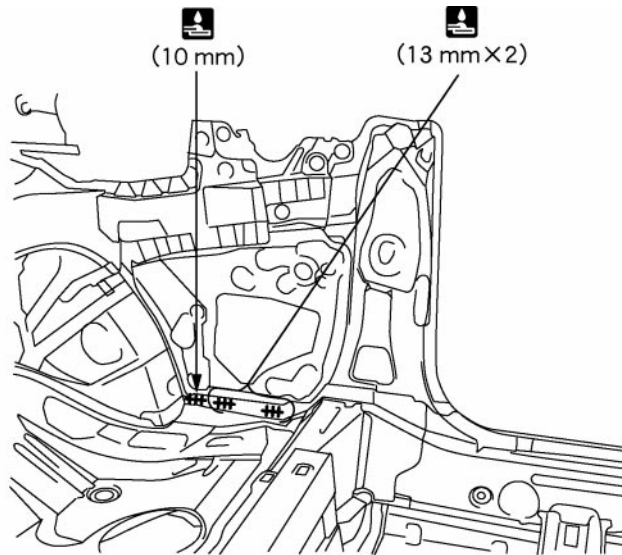
- Temporarily install the new parts and measure each part of the new parts in accordance with the body dimension diagram. (See the body dimension diagram)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.

[LH]**[RH]**

F17041

PART NAME

- [B] Roof Side Outer Panel [C] Wiring Harness Bracket
 [D] Quarter Panel To Upper Back Extension



F17042

POINT

1 After welding the quarter wheel housing outer panel to the vehicle side, install the [A].

PART NAME

[A] Rocker Panel

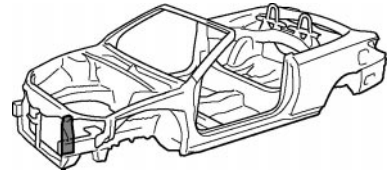
8.5 mm (0.33 in.)

11 mm (0.43 in.)

RADIATOR SUPPORT UPPER BRACE (ASSY)

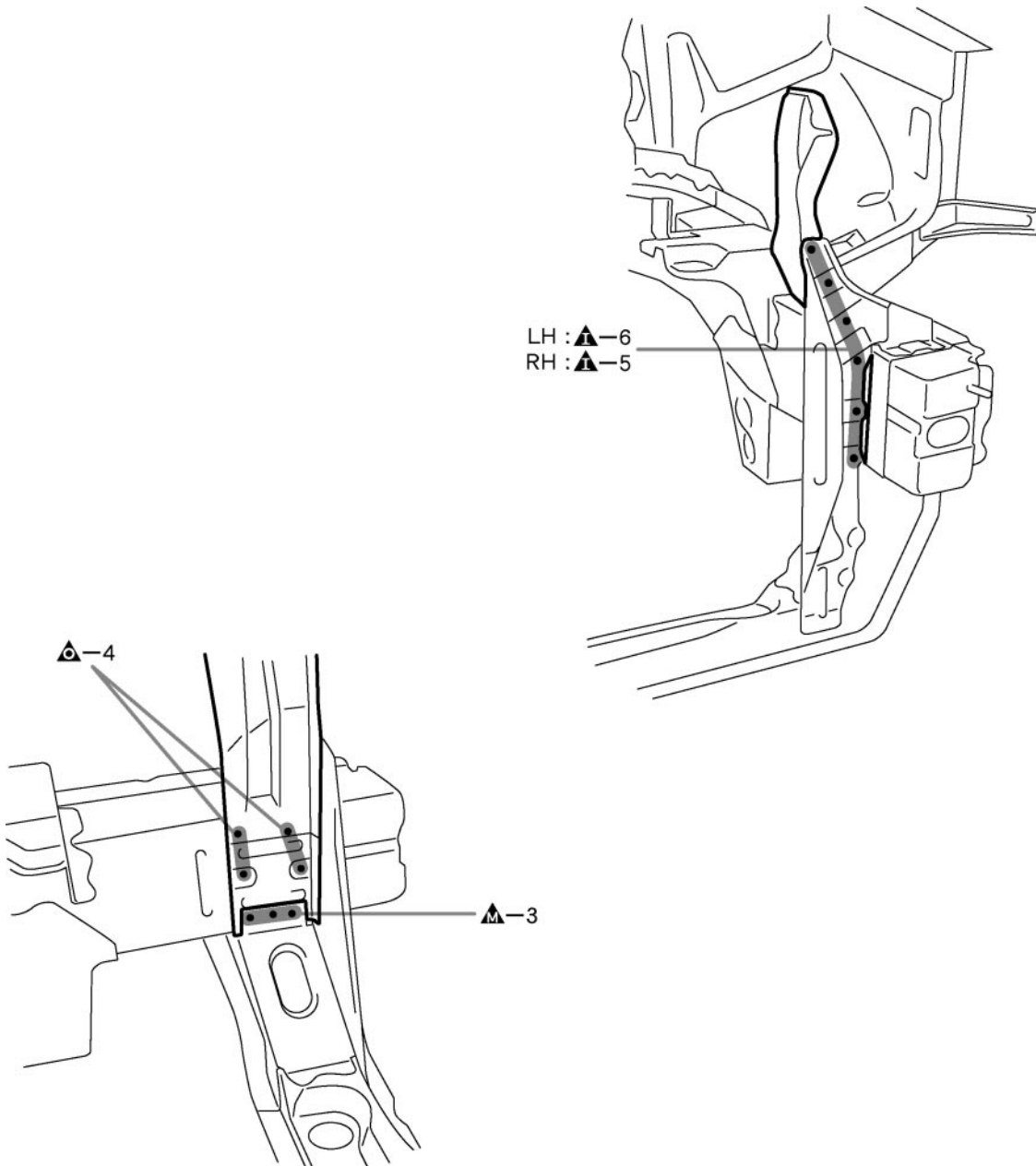
REPLACEMENT

With the radiator upper support removed.



F16819B

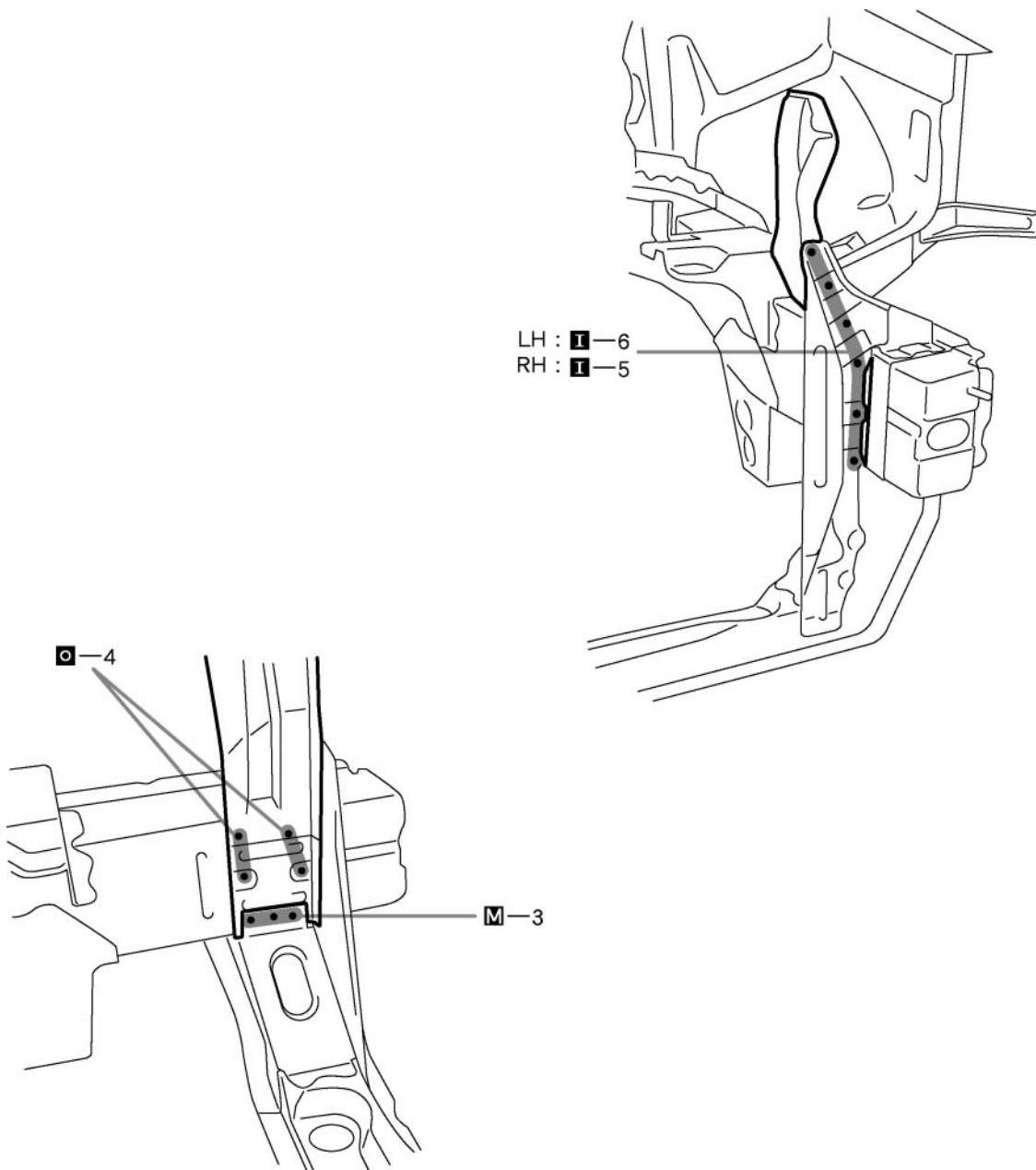
REMOVAL



F16819

INSTALLATION

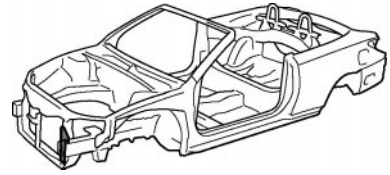
- Temporarily install the new parts and measure each part of the new parts in accordance with the body dimension diagram. (See the body dimension diagram)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



RADIATOR SIDE SUPPORT (ASSY)

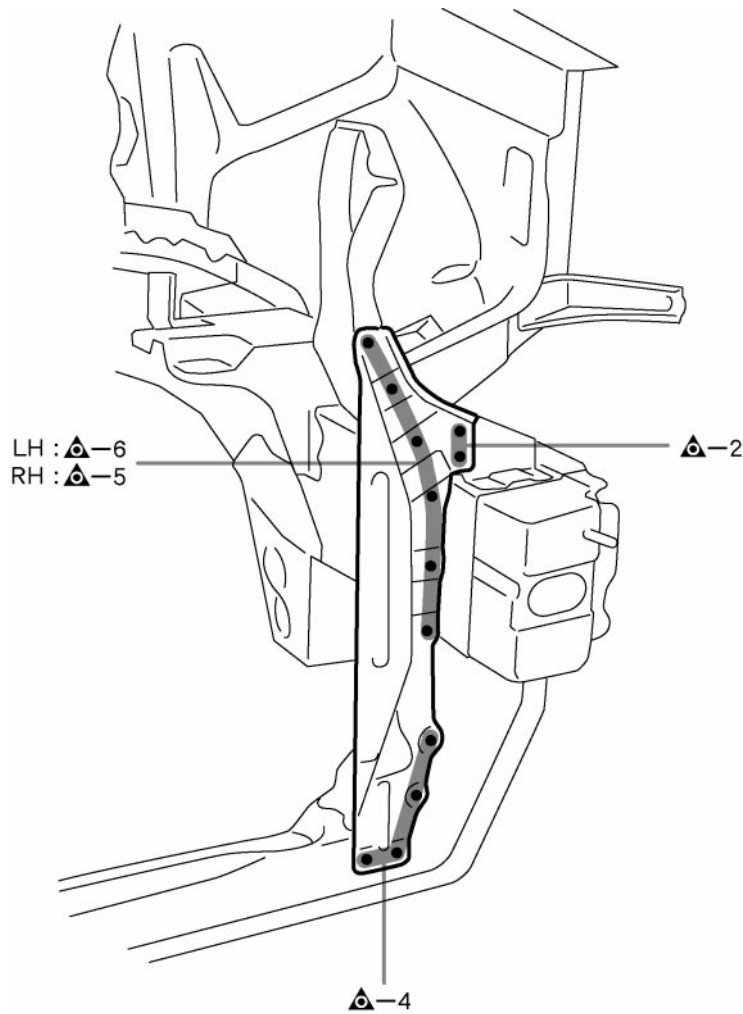
REPLACEMENT

With the radiator upper support removed.



F16821B

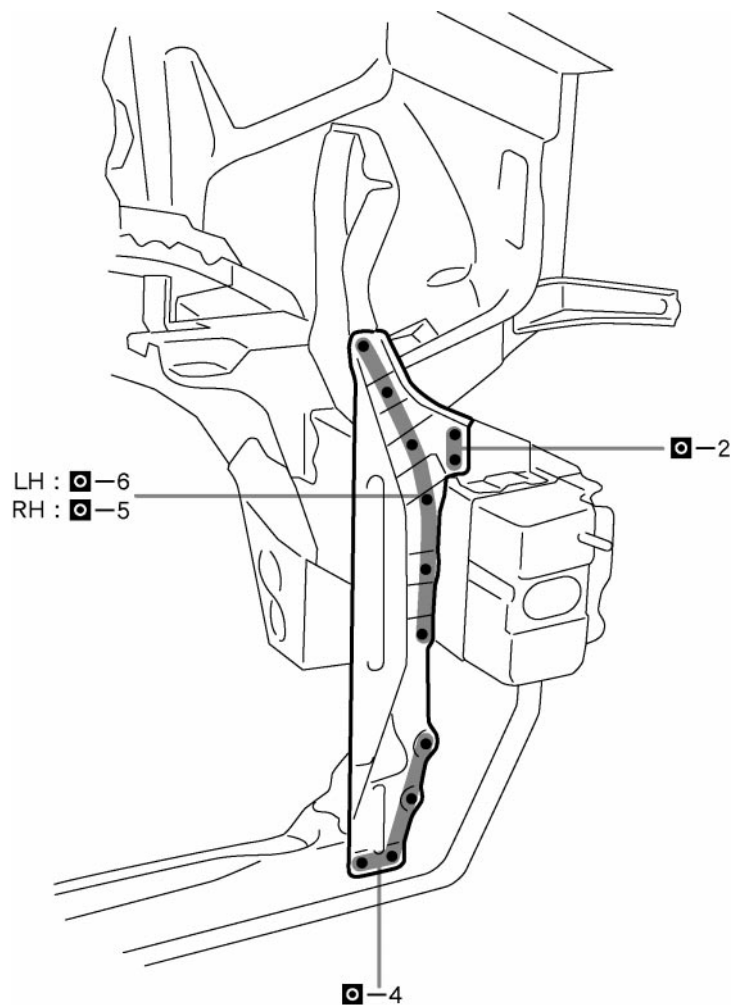
REMOVAL



F16821

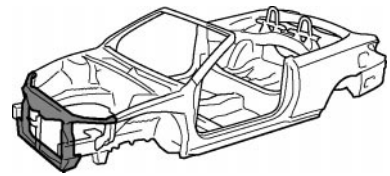
INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



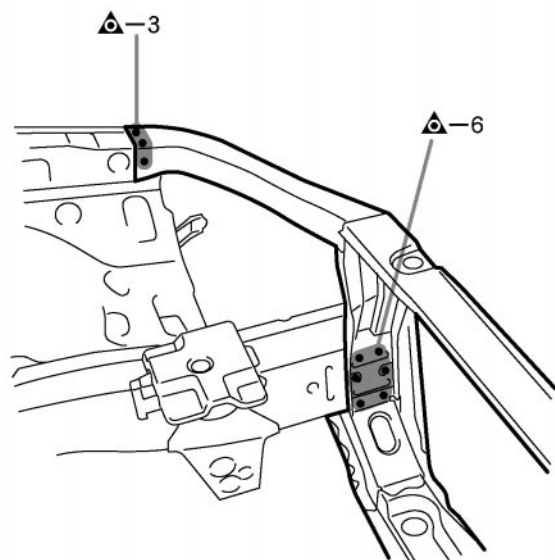
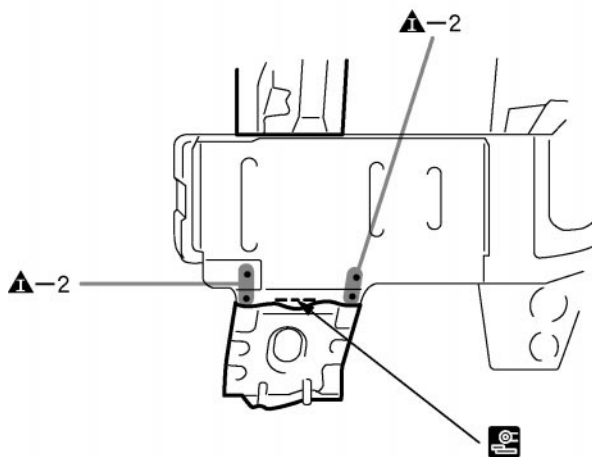
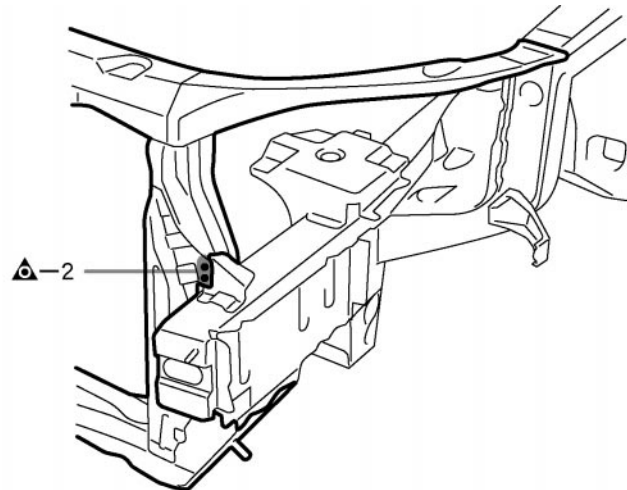
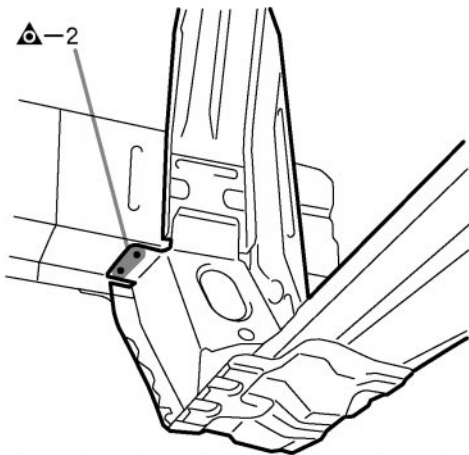
RADIATOR SUPPORT (ASSY)

REPLACEMENT



F16825B

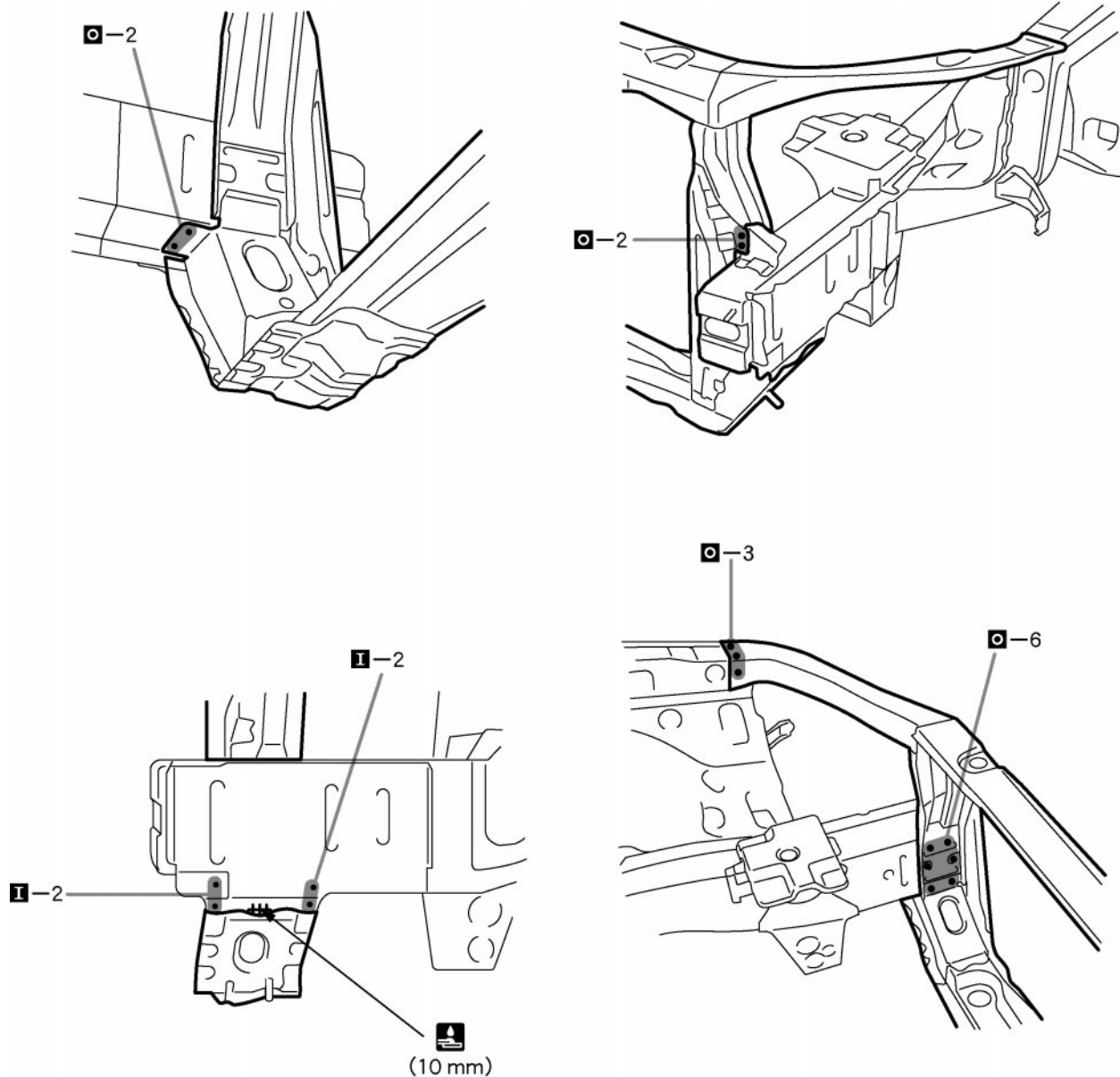
REMOVAL



F16825

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F16826

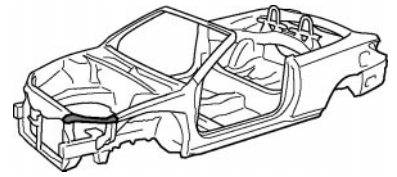
POINT

- 1 Inspect the fitting of the headlight, front fender and hood, etc., before welding, since this affects the appearance of the finish.

10 mm (0.39 in.)

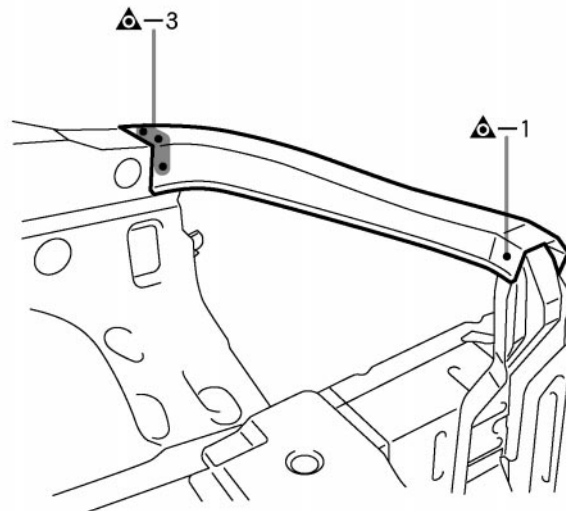
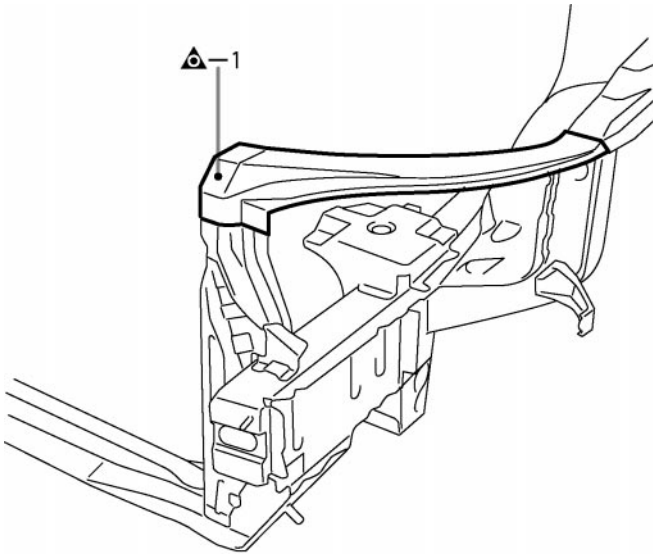
RADIATOR UPPER SUPPORT (ASSY)

REPLACEMENT



F16816B

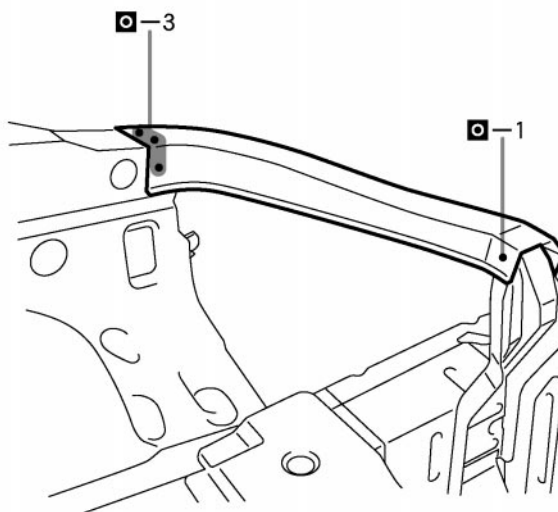
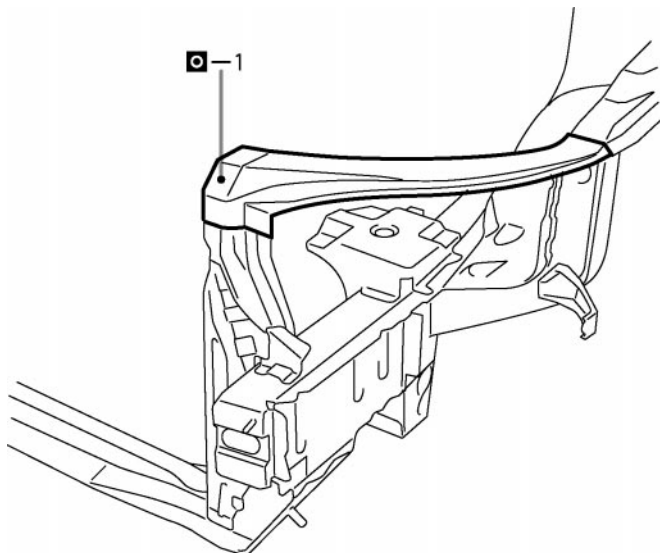
REMOVAL



F16816

INSTALLATION

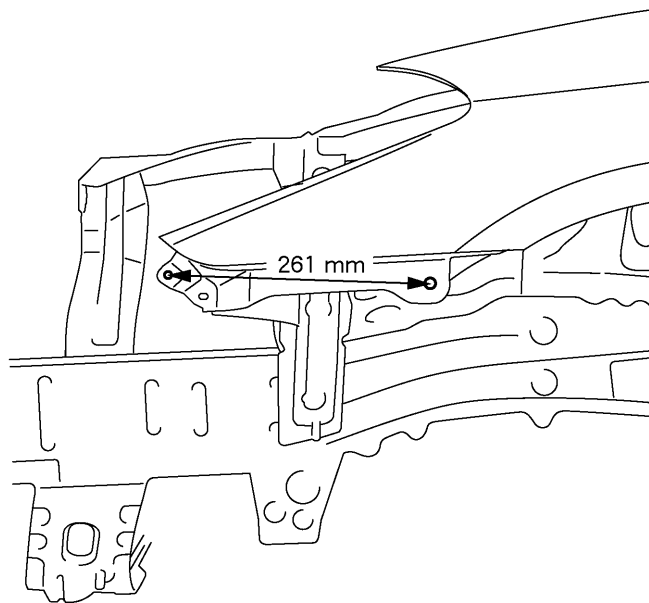
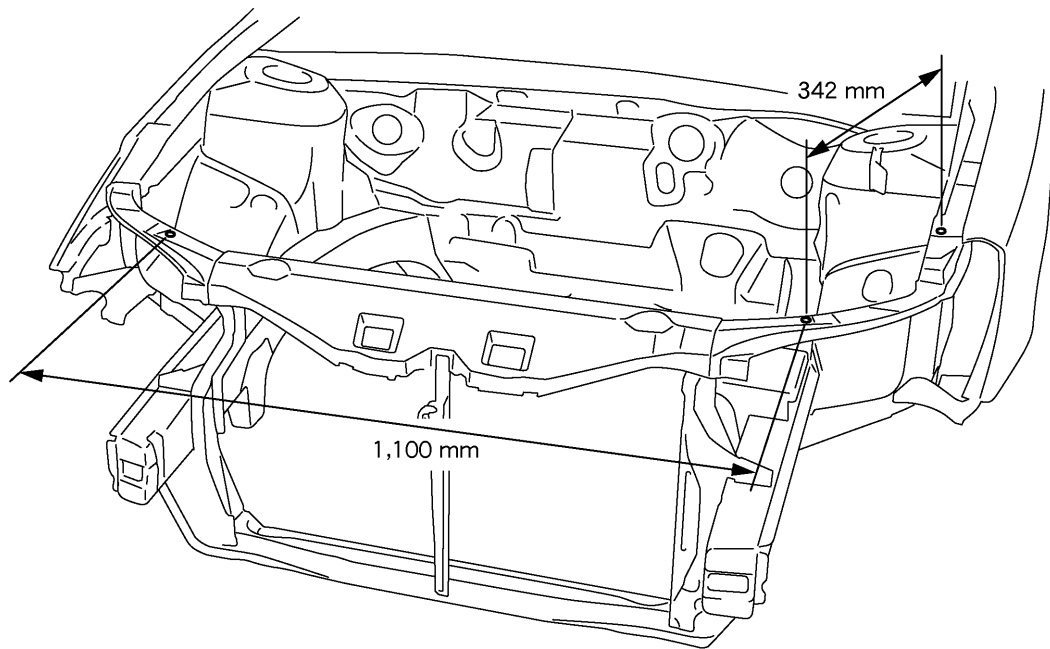
- Temporarily install the new parts and measure each part of the new parts in accordance with the body dimension diagram. (See the body dimension diagram)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F16817

POINT

- 1 Inspect the fitting of the headlight, front fender and hood, etc., before welding, since this affects the appearance of the finish.



F16818

POINT

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

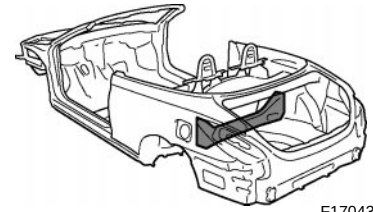
261 mm (10.28 in.)

342 mm (13.46 in.)

1,100 mm (43.31 in.)

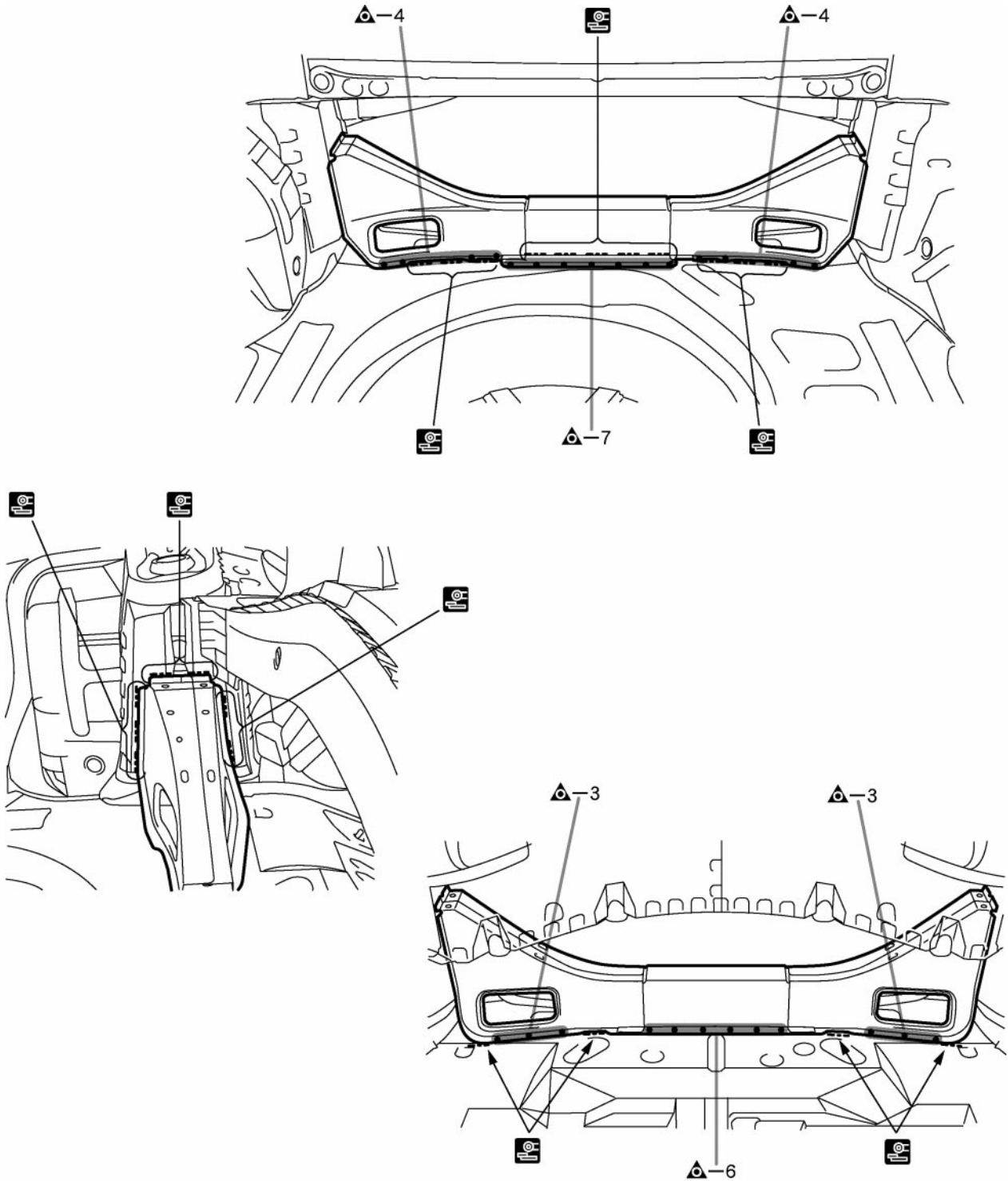
REAR FLOOR CROSSMEMBER GUSSET (ASSY)

REPLACEMENT



F17043A

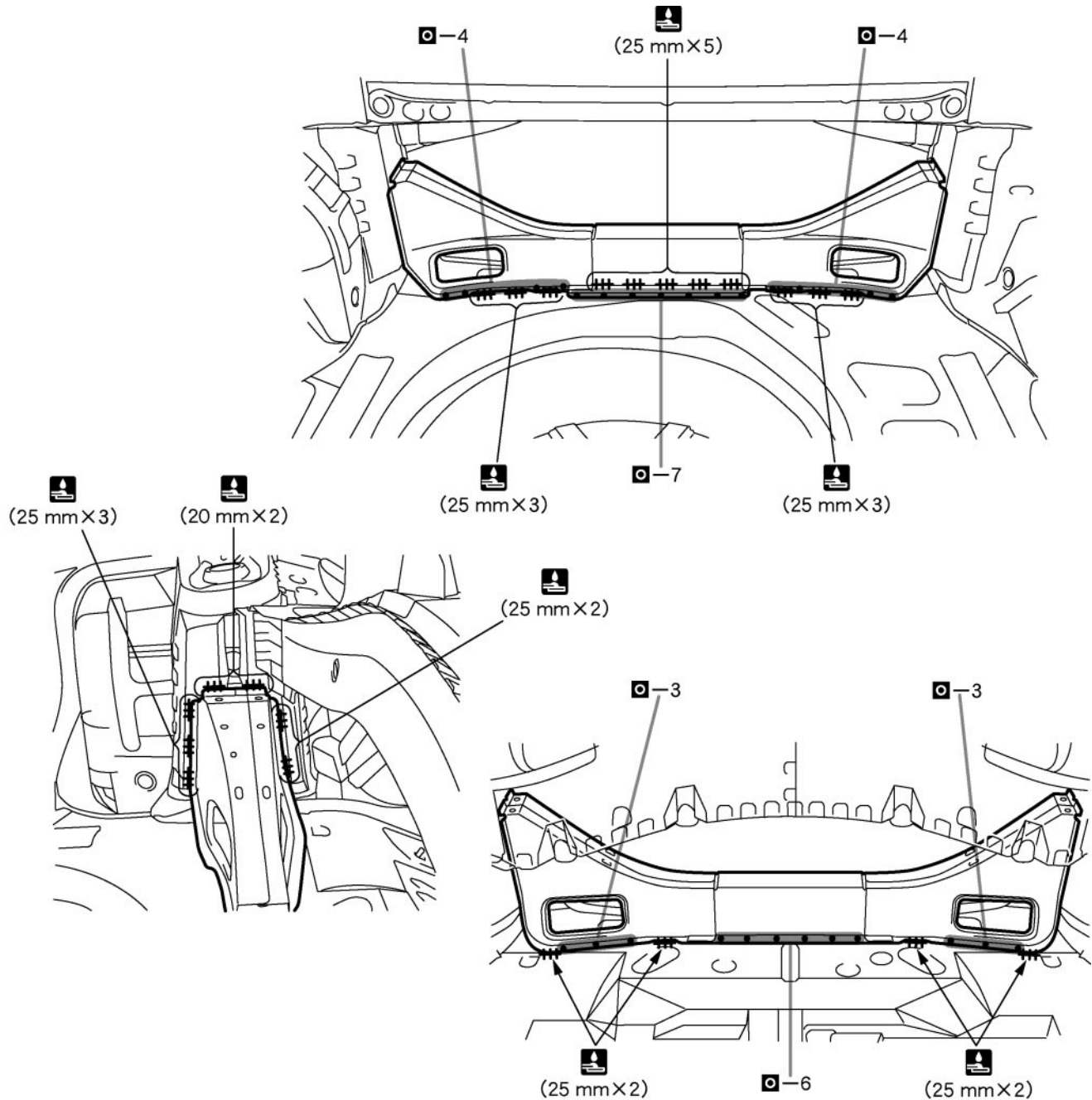
REMOVAL



F17043

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F17044

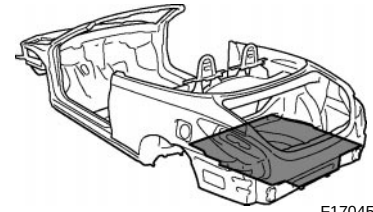
20 mm (0.79 in.)

25 mm (0.98 in.)

REAR FLOOR PAN (ASSY)

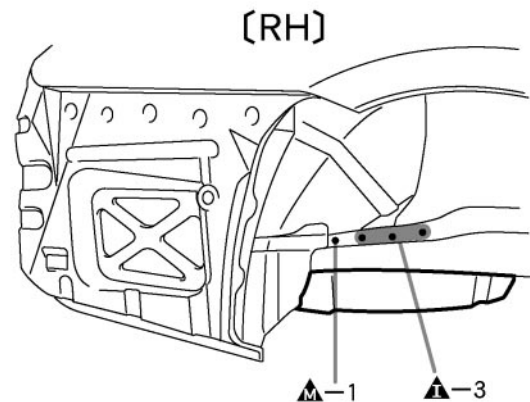
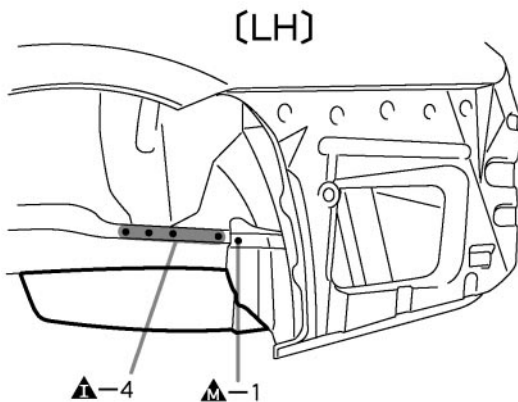
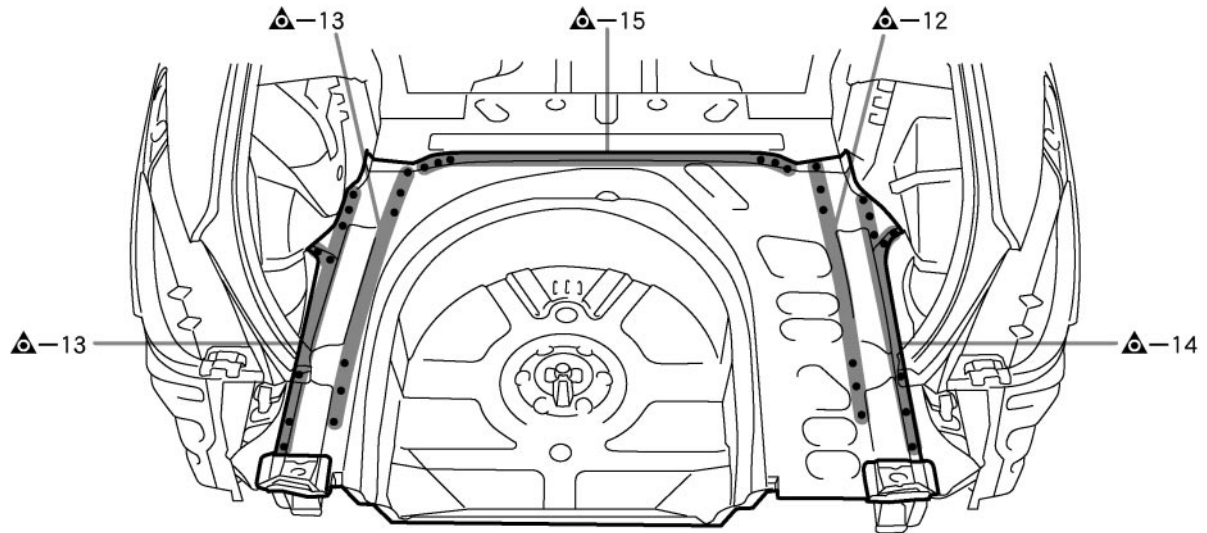
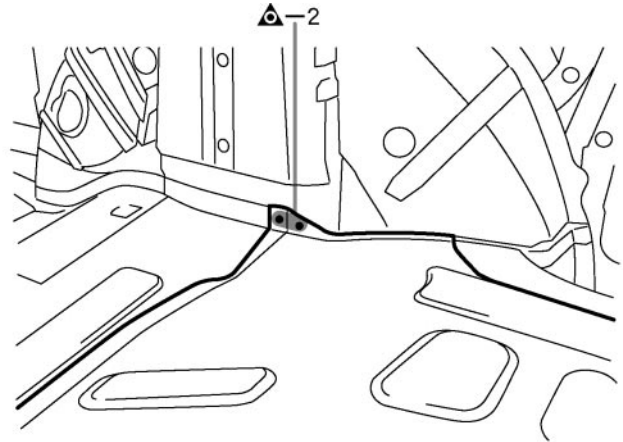
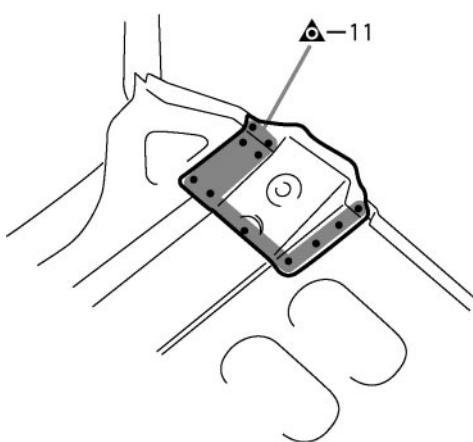
REPLACEMENT

With the rear floor No.3 crossmember and rear floor crossmember gusset removed.



F17045A

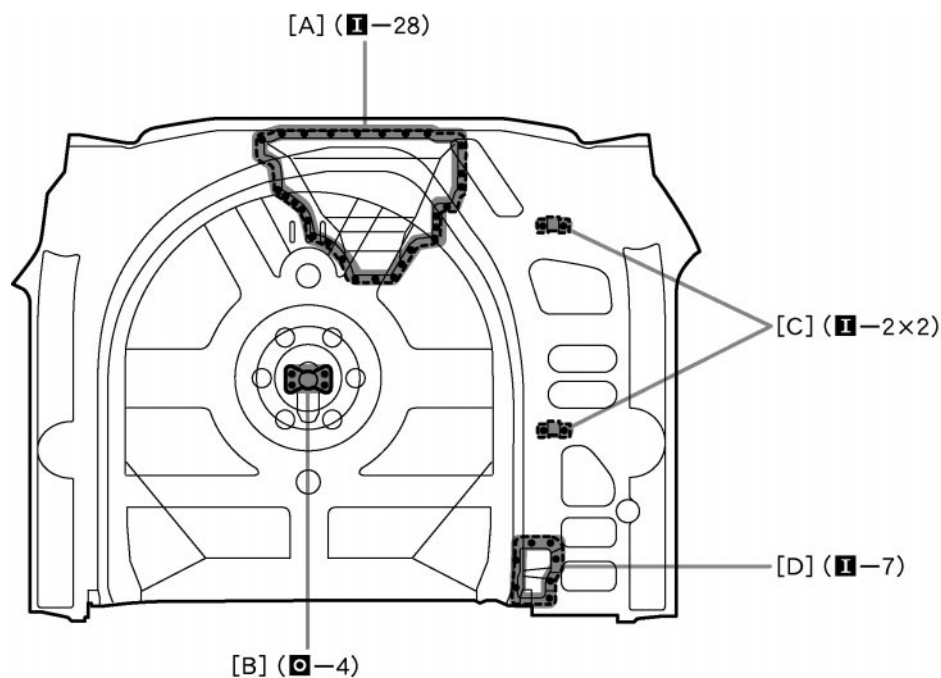
REMOVAL



F17045

INSTALLATION

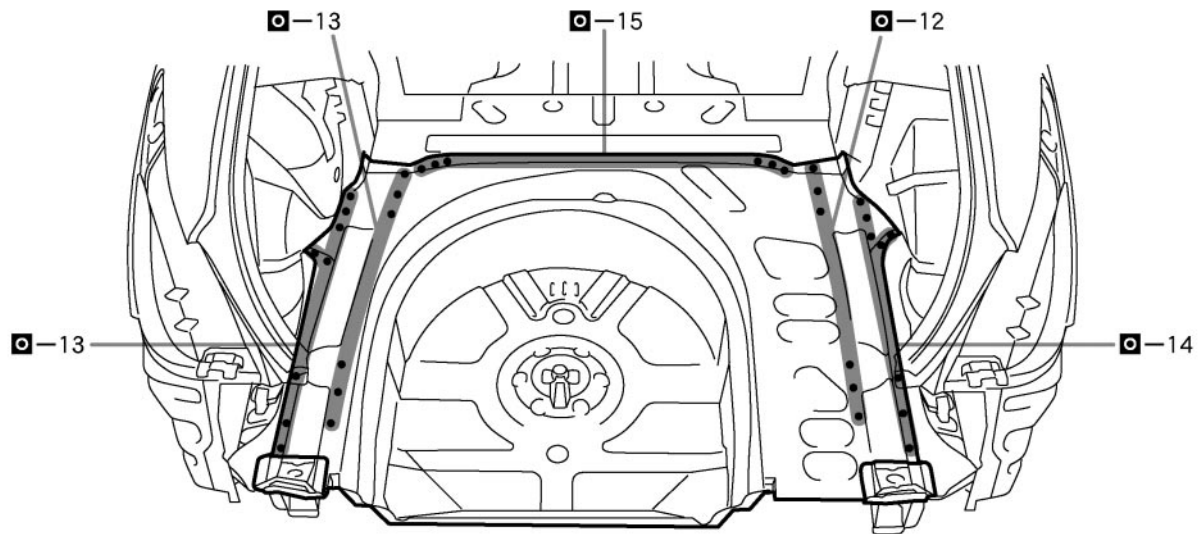
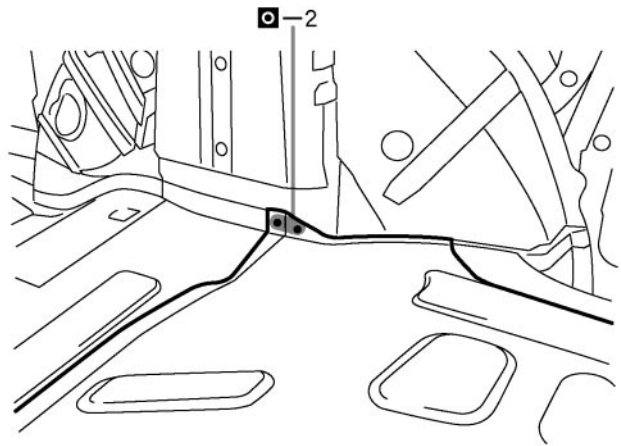
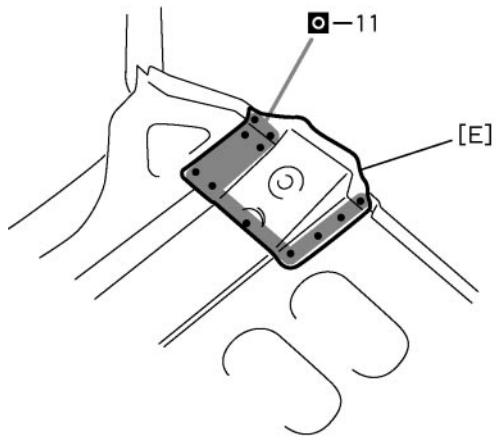
- Temporarily install the new parts and measure each part of the new parts in accordance with the body dimension diagram. (See the body dimension diagram)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



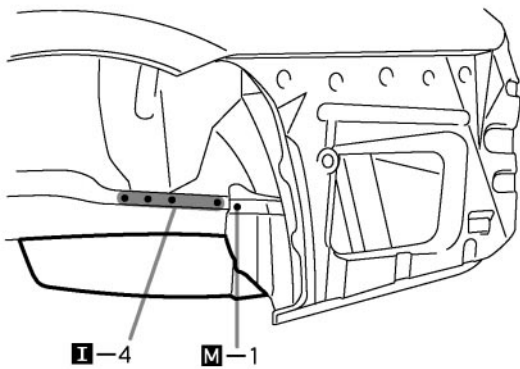
F17046

PART NAME

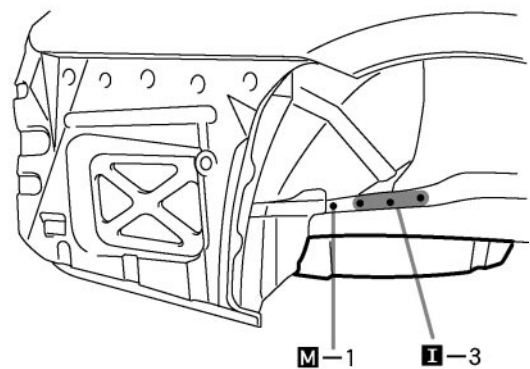
- | | |
|----------------------------|---|
| [A] Torsion Bar Bracket | [B] Spare Wheel Clamp Bracket |
| [C] Fuel Tube No.3 Bracket | [D] Exhaust Pipe Mounting Inner Bracket |



[LH]



[RH]



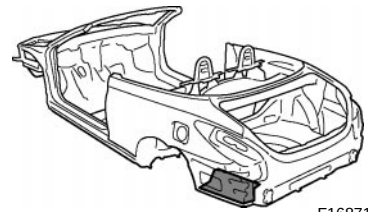
F17047

PART NAME

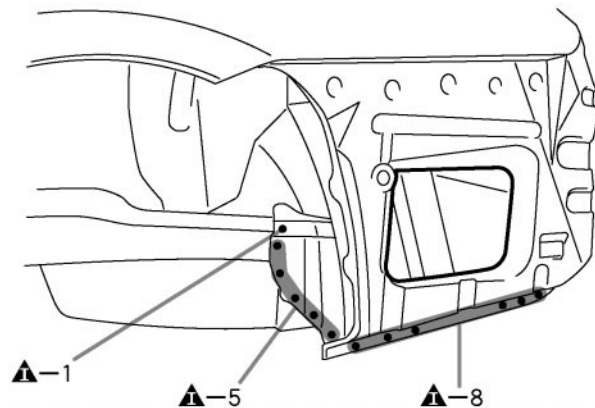
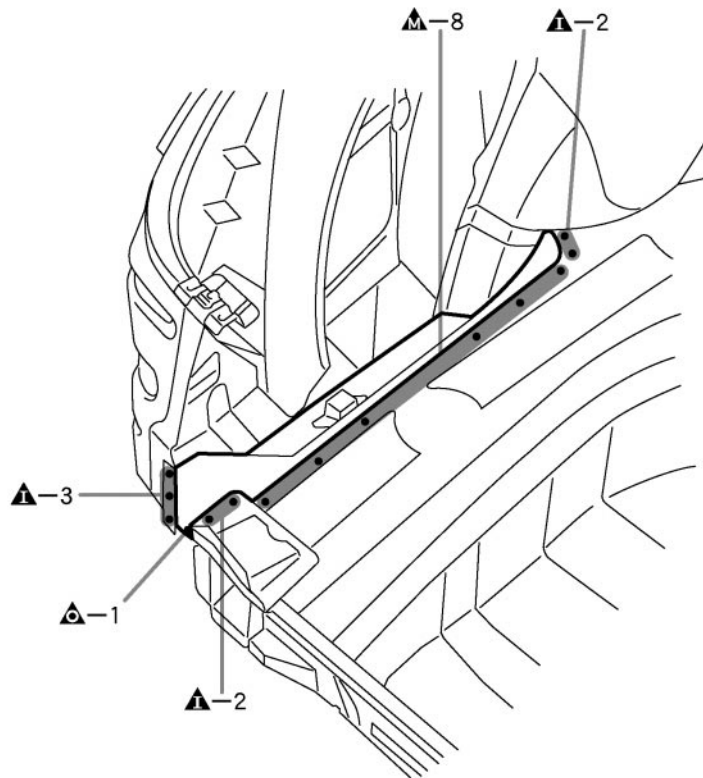
[E] Rear Floor Pan Reinforcement

REAR FLOOR SIDE PANEL (ASSY)**REPLACEMENT**

With the body lower back panel removed.

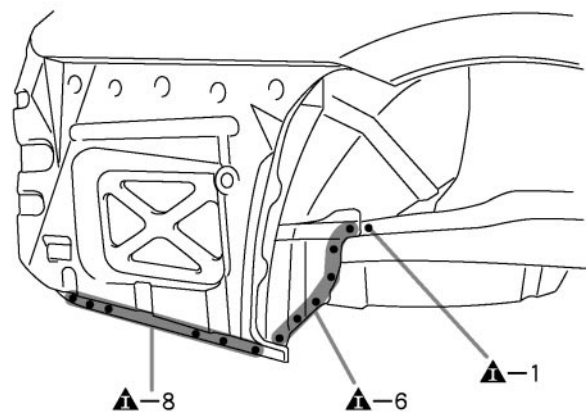
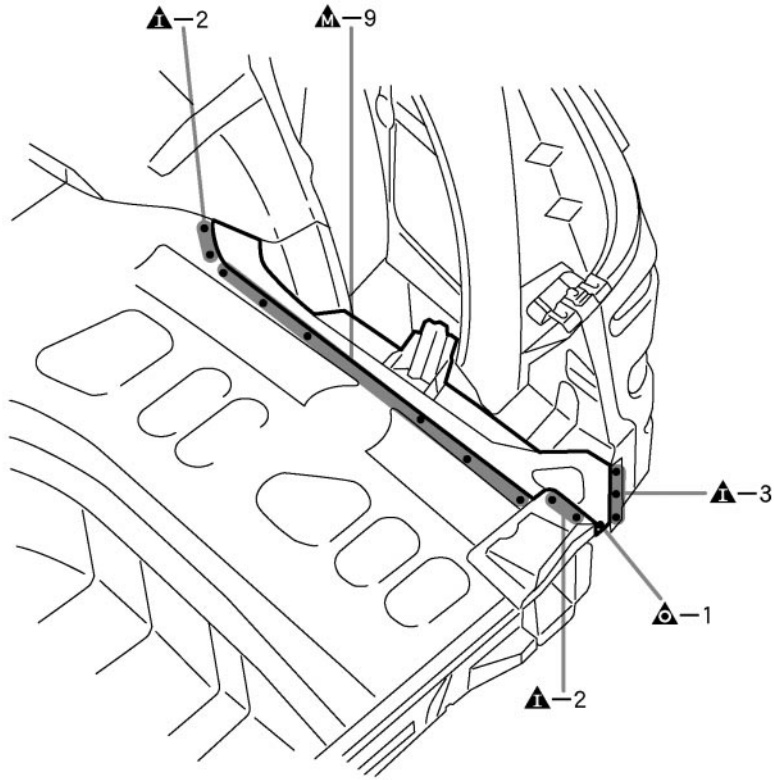


F16871B

REMOVAL**(LH)**

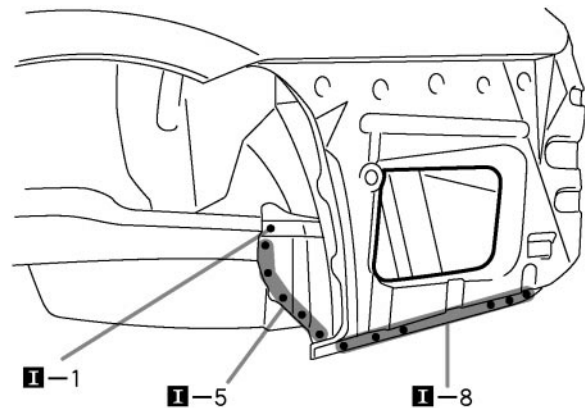
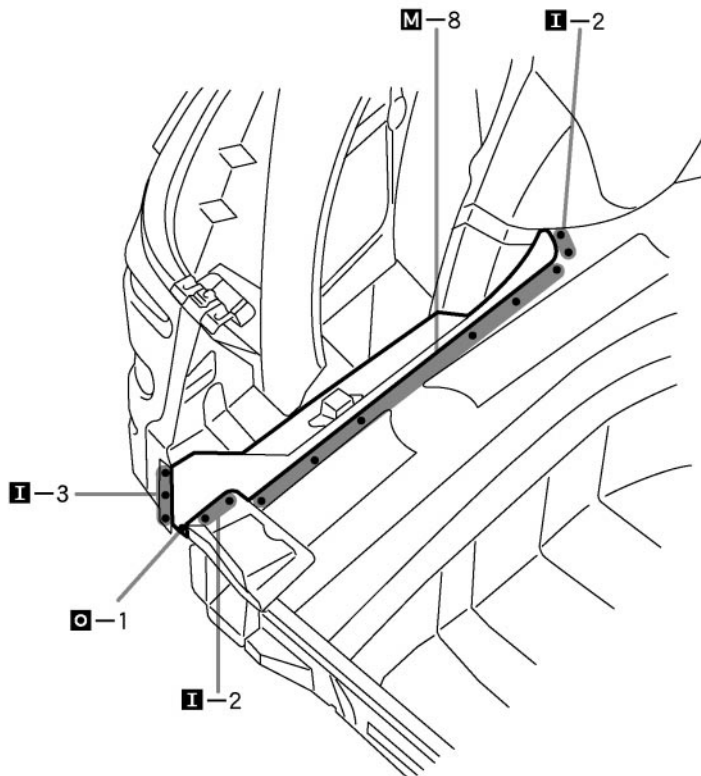
F16871

[RH]

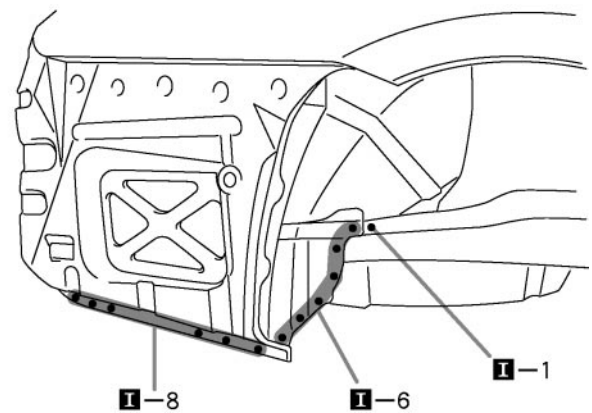
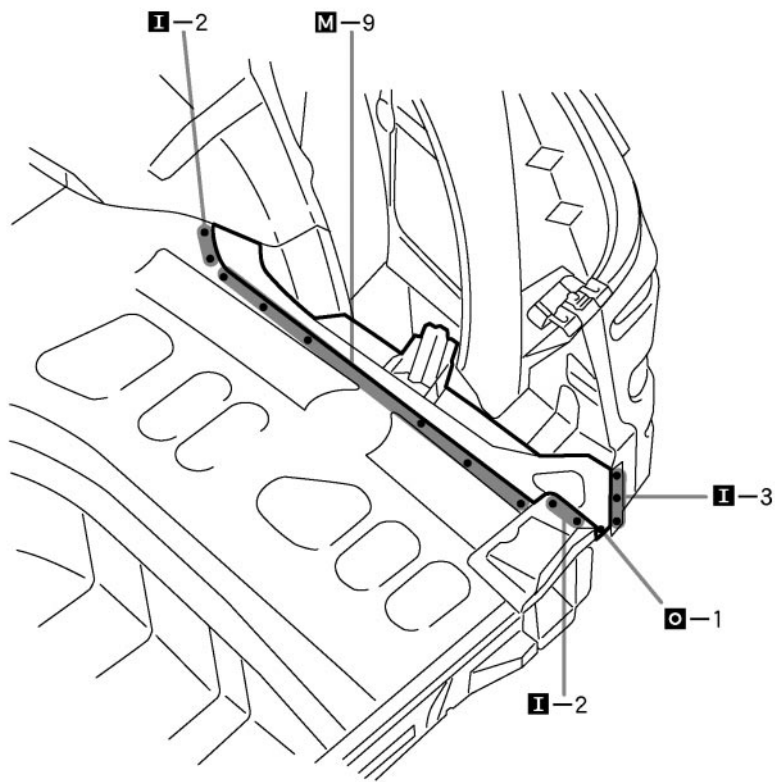


INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.

(LH)

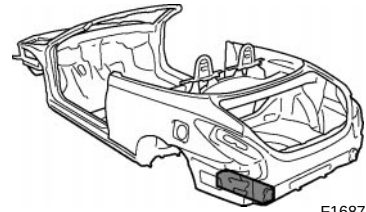
[RH]



REAR FLOOR SIDE REAR MEMBER (CUT-H)

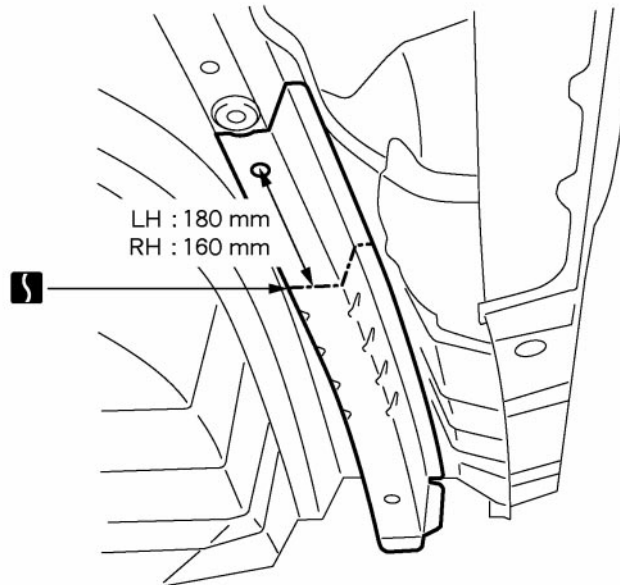
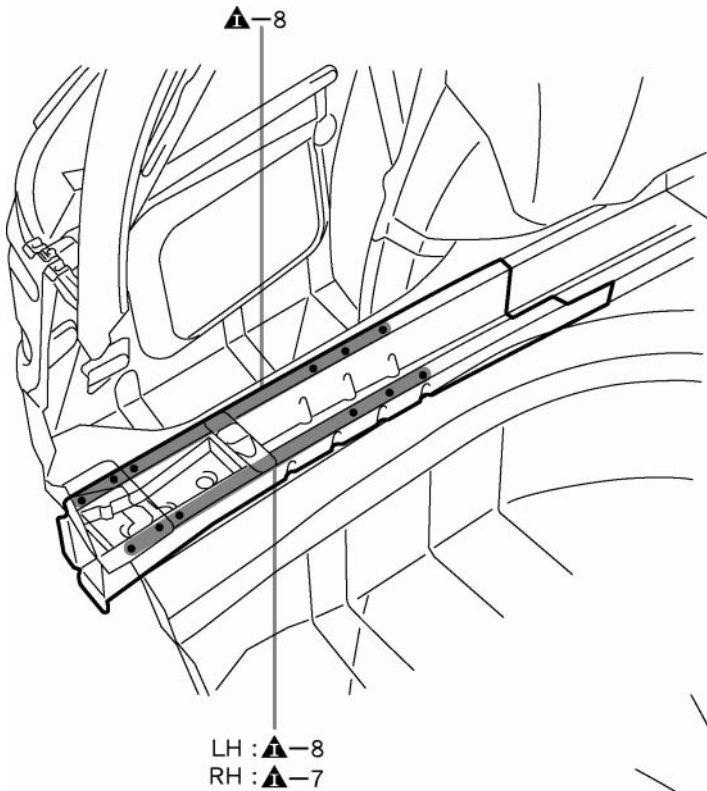
REPLACEMENT

With the rear floor No.3 crossmember removed.



F16875B

REMOVAL



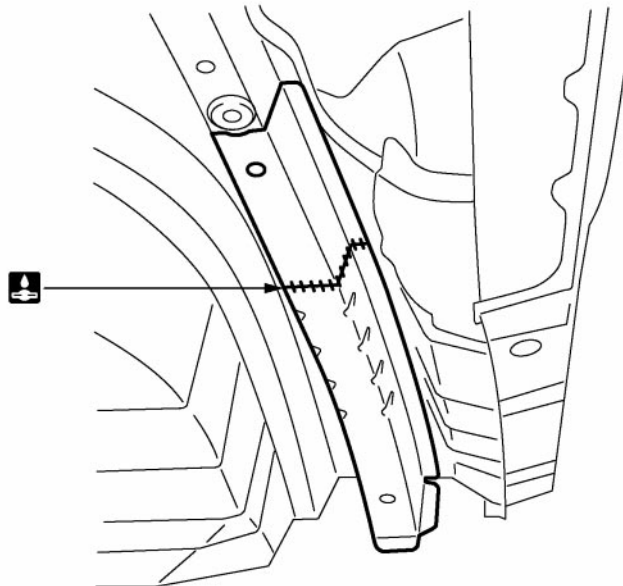
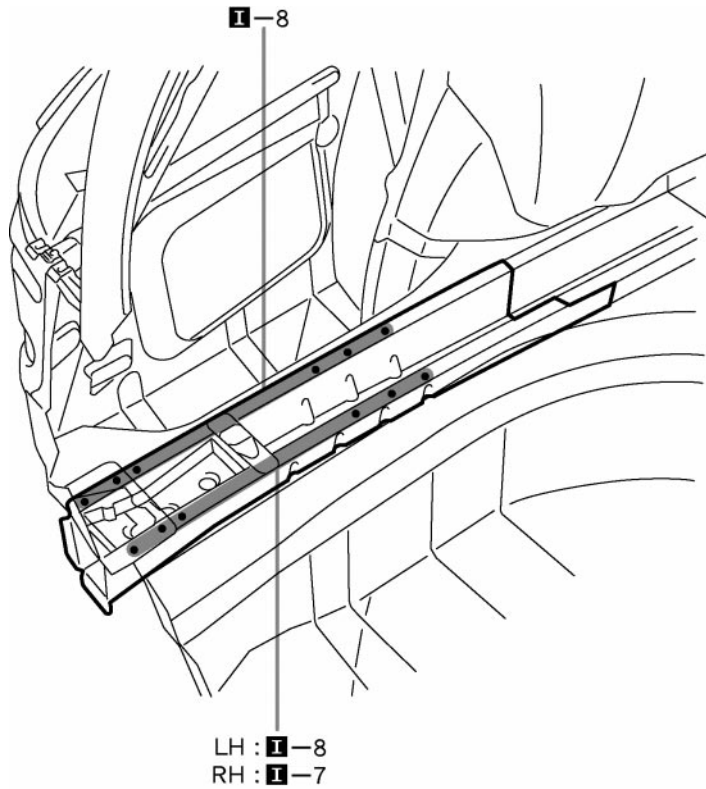
F16875

160 mm (6.30 in.)

180 mm (7.09 in.)

INSTALLATION

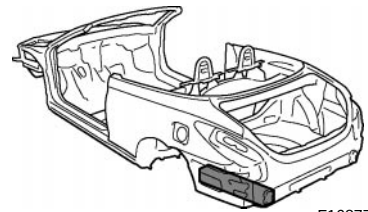
- Temporarily install the new parts and measure each part of the new parts in accordance with the body dimension diagram. (See the body dimension diagram)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



REAR FLOOR SIDE REAR MEMBER (ASSY)

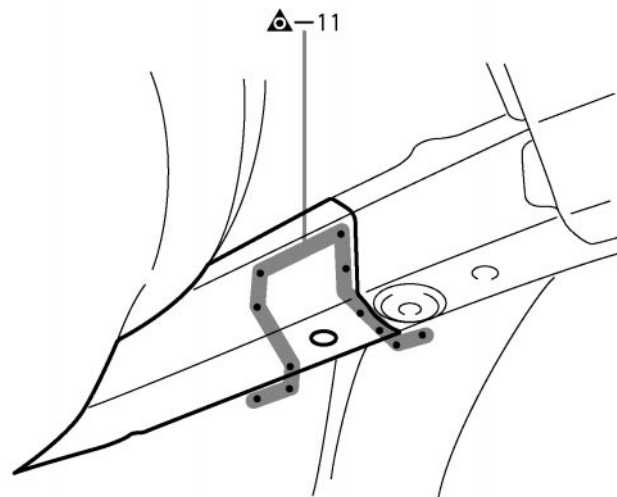
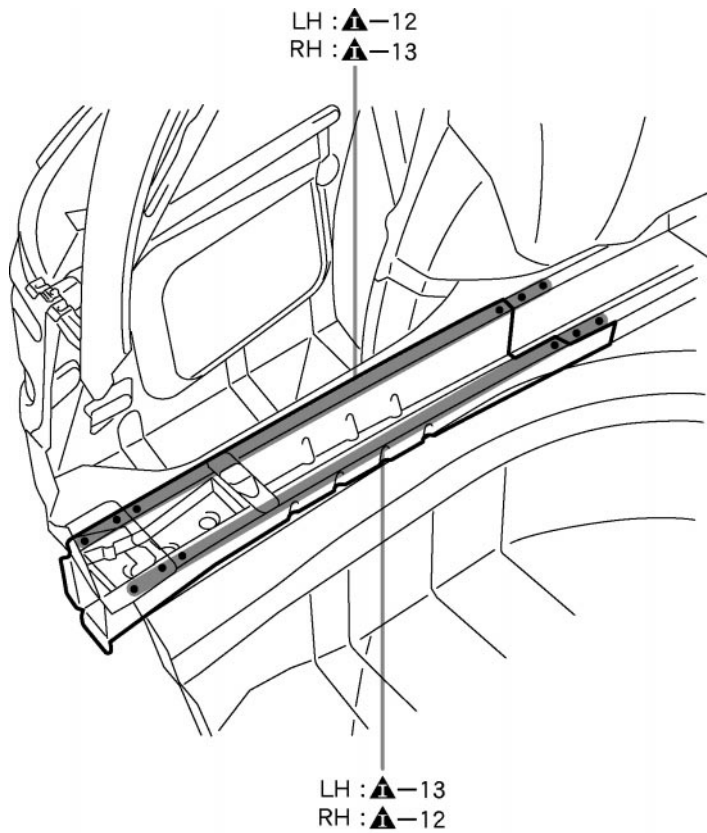
REPLACEMENT

With the rear floor No.3 crossmember removed.



F16877B

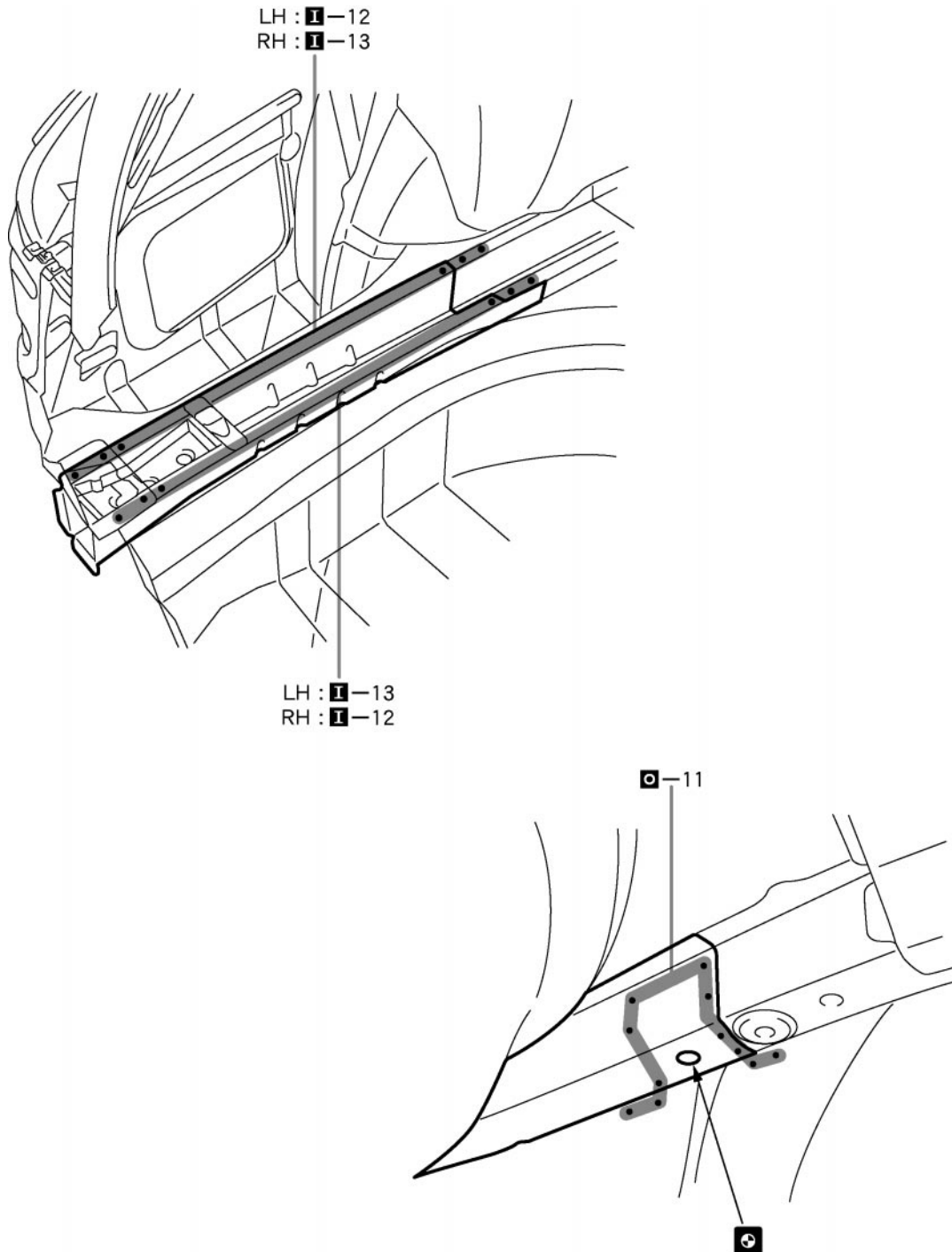
REMOVAL

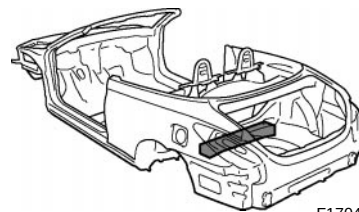


F16877

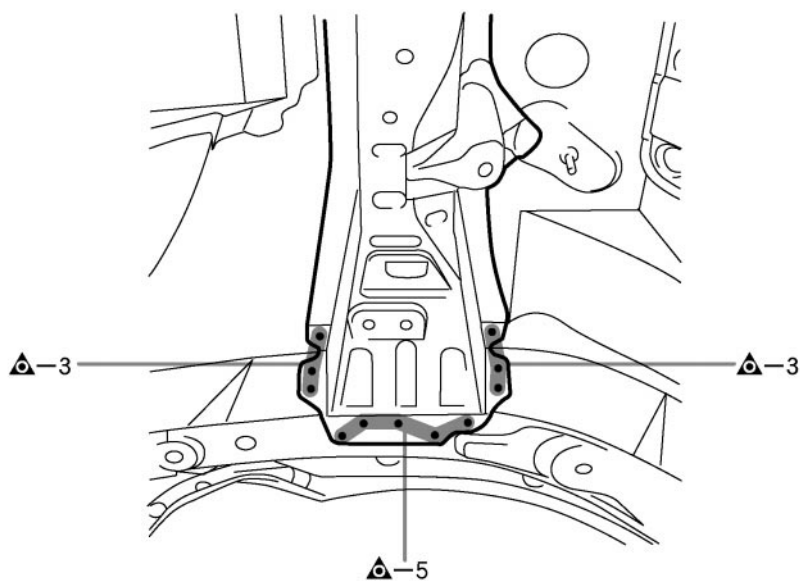
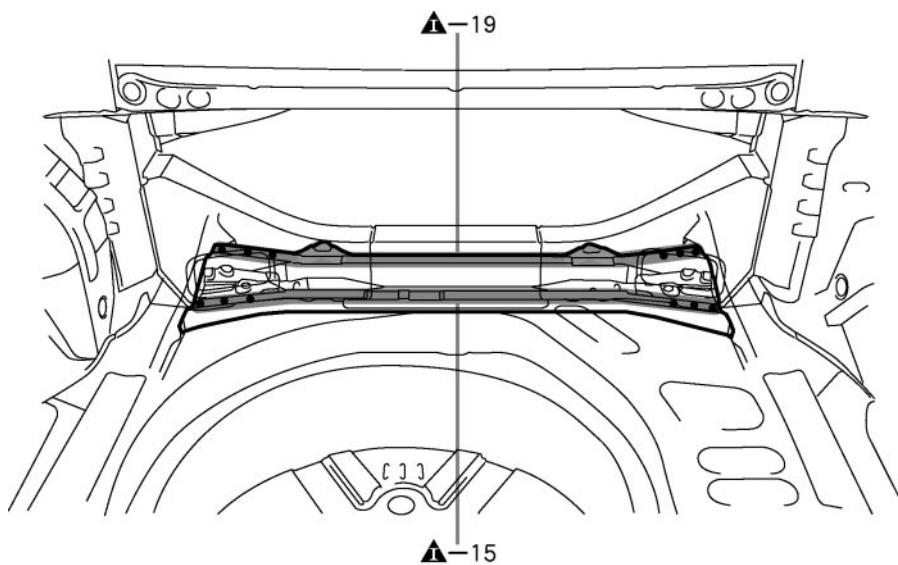
INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



REAR FLOOR NO.2 CROSSMEMBER (ASSY)**REPLACEMENT**

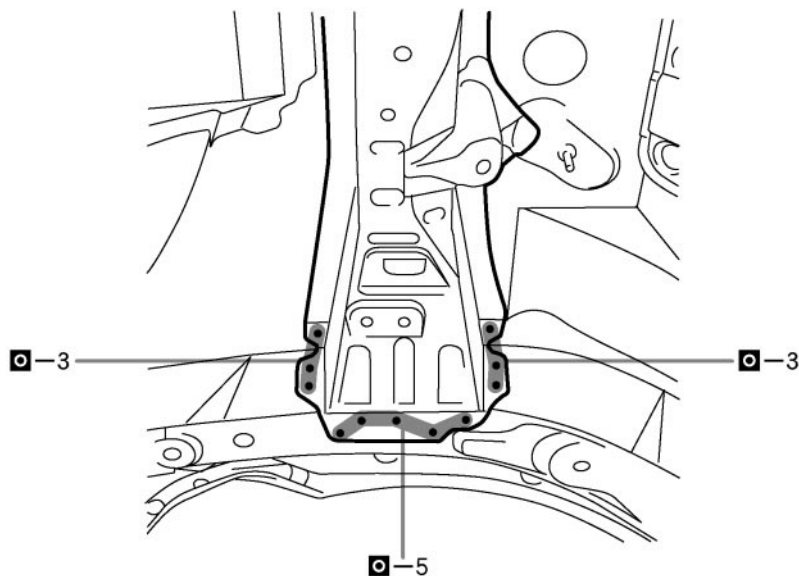
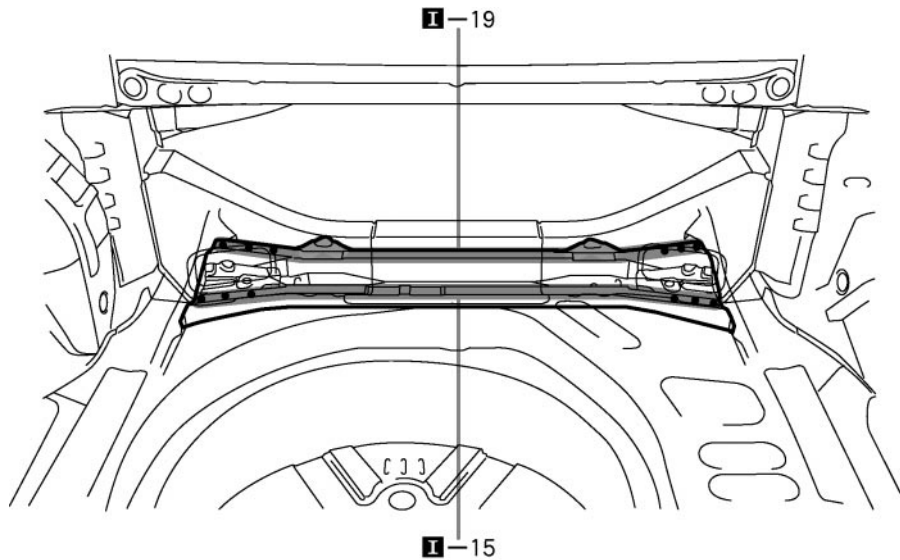
F17048A

REMOVAL

F17048

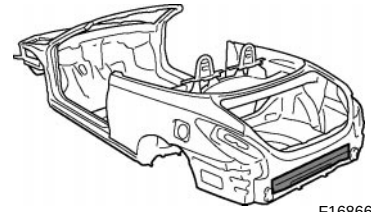
INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.

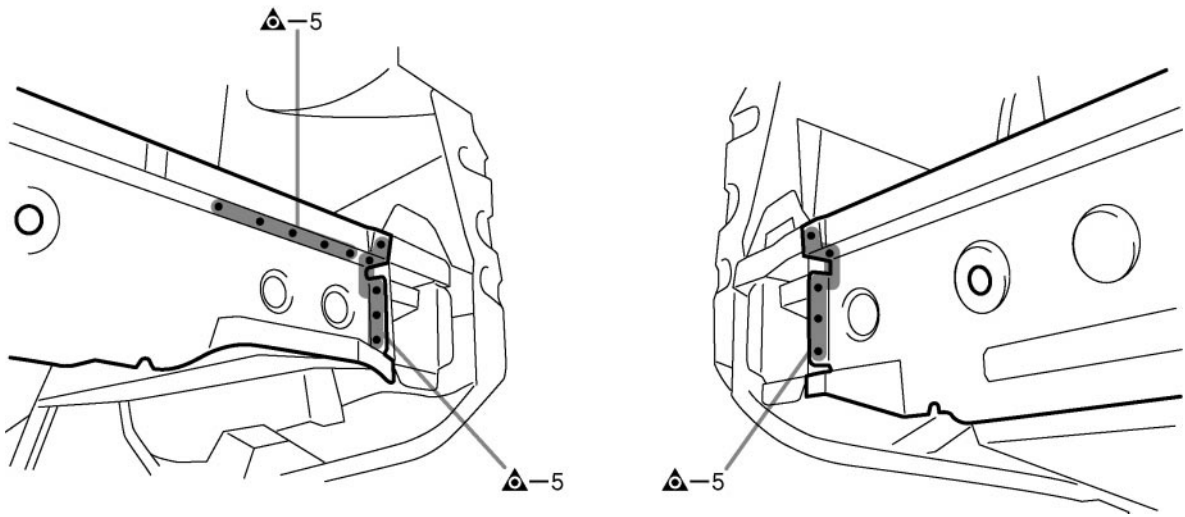
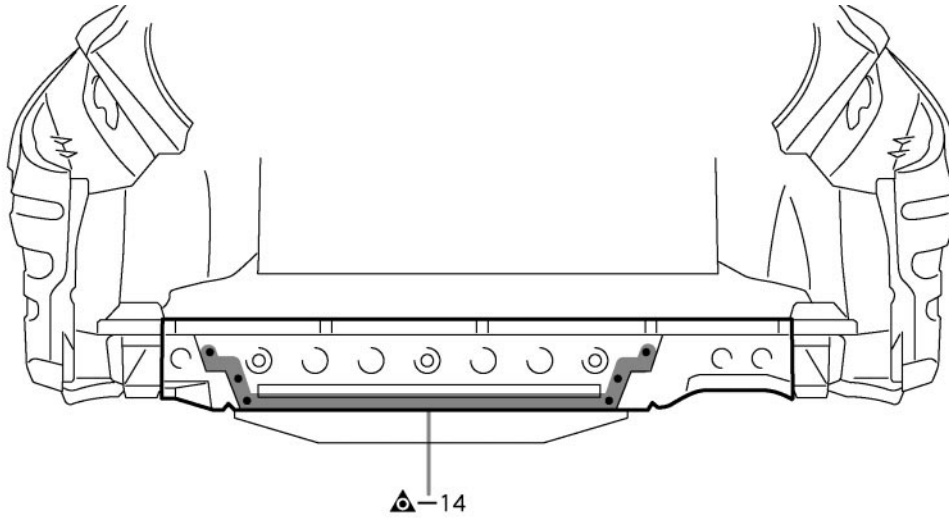


REAR FLOOR NO.3 CROSSMEMBER (ASSY)**REPLACEMENT**

With the body lower back panel removed.



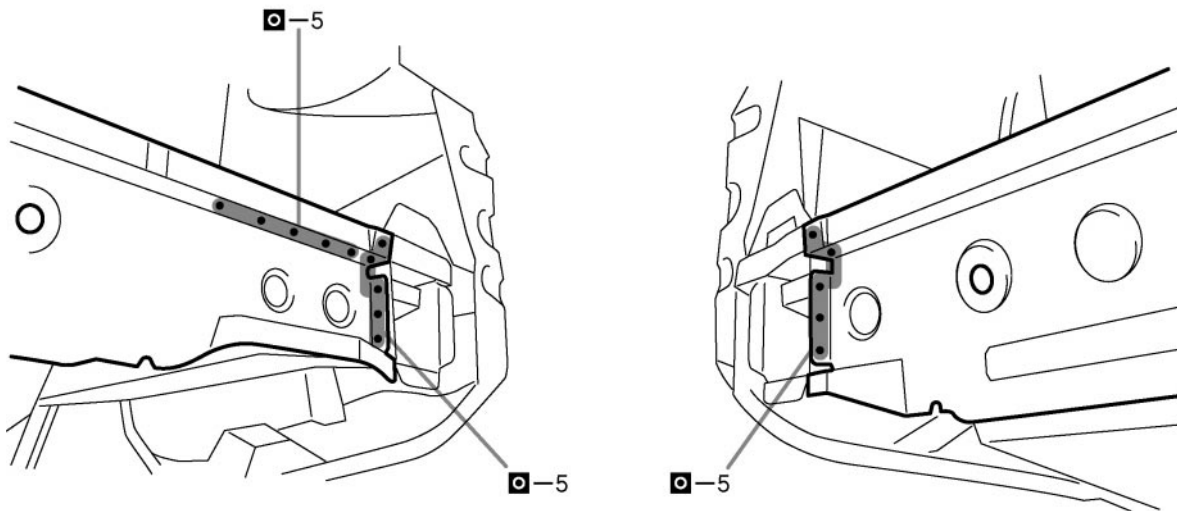
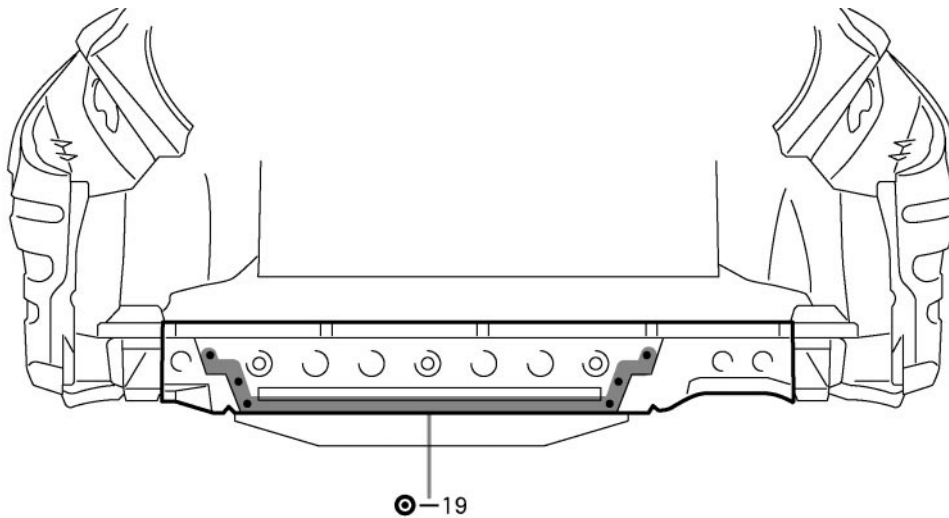
F16866B

REMOVAL

F16866

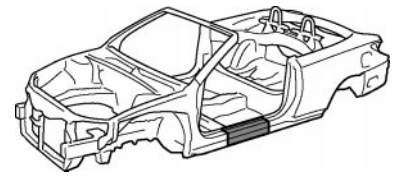
INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



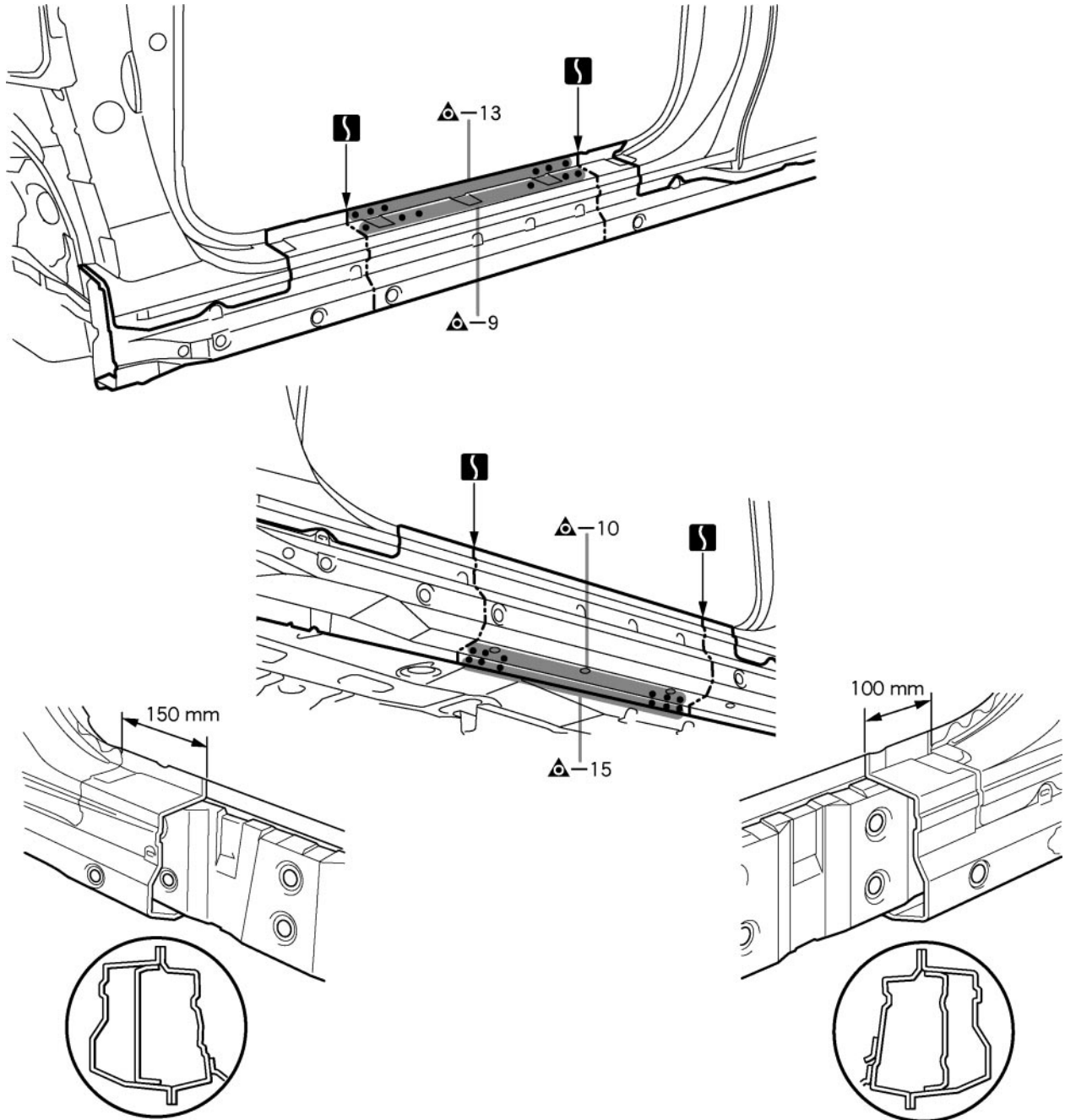
ROCKER OUTER PANEL (CUT-H)

REPLACEMENT



F17023A

REMOVAL



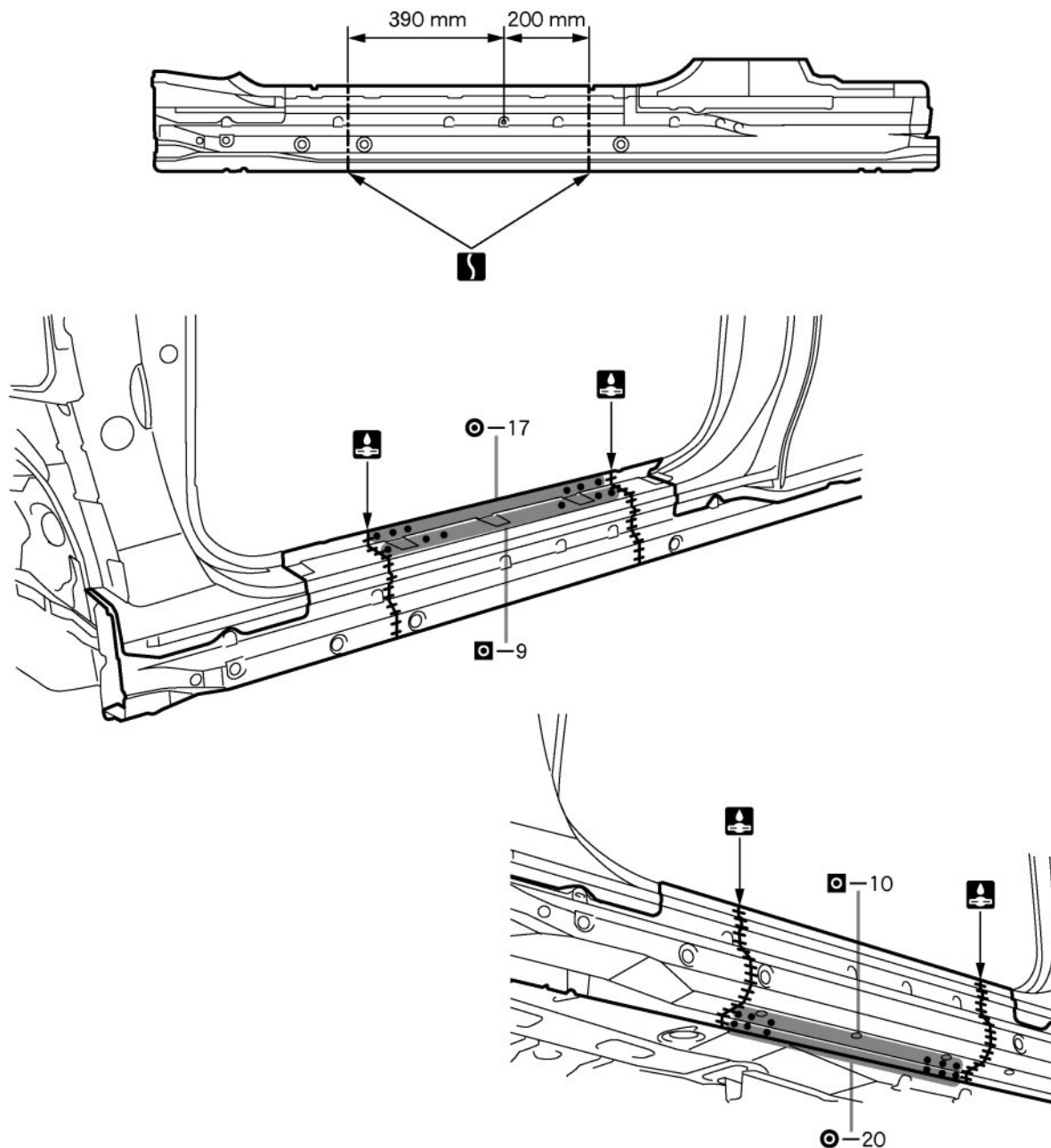
F17023

100 mm (3.94 in.)

150 mm (5.91 in.)

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F17024

POINT

- 1 Inspect the fitting of the front door, etc., before welding, since this affects the appearance of the finish.

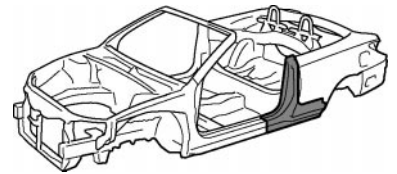
200 mm (7.87 in.)

390 mm (15.35 in.)

ROCKER PANEL (CUT-H)

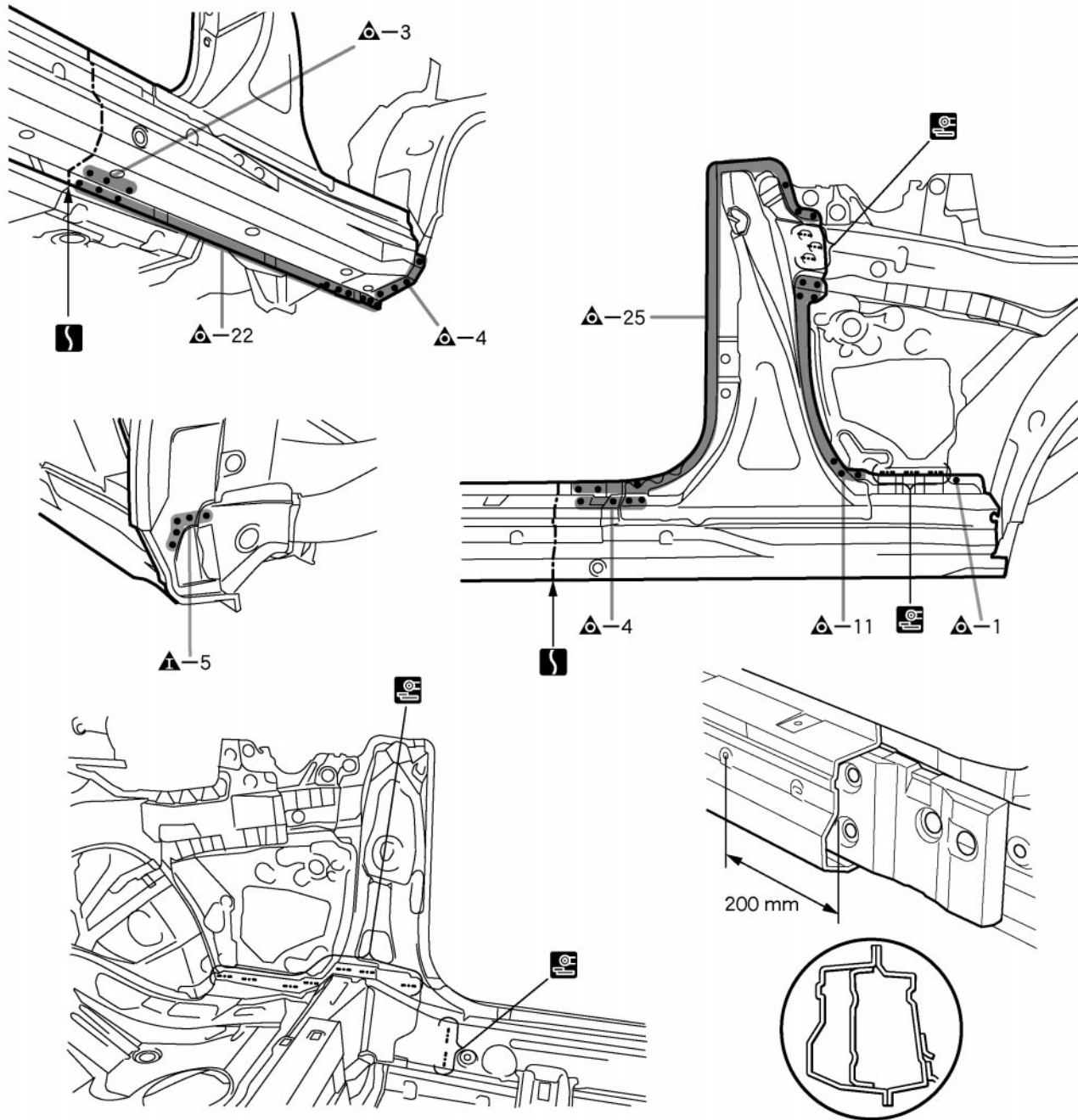
REPLACEMENT

With the belt anchor reinforcement and quarter panel removed.



F17025A

REMOVAL

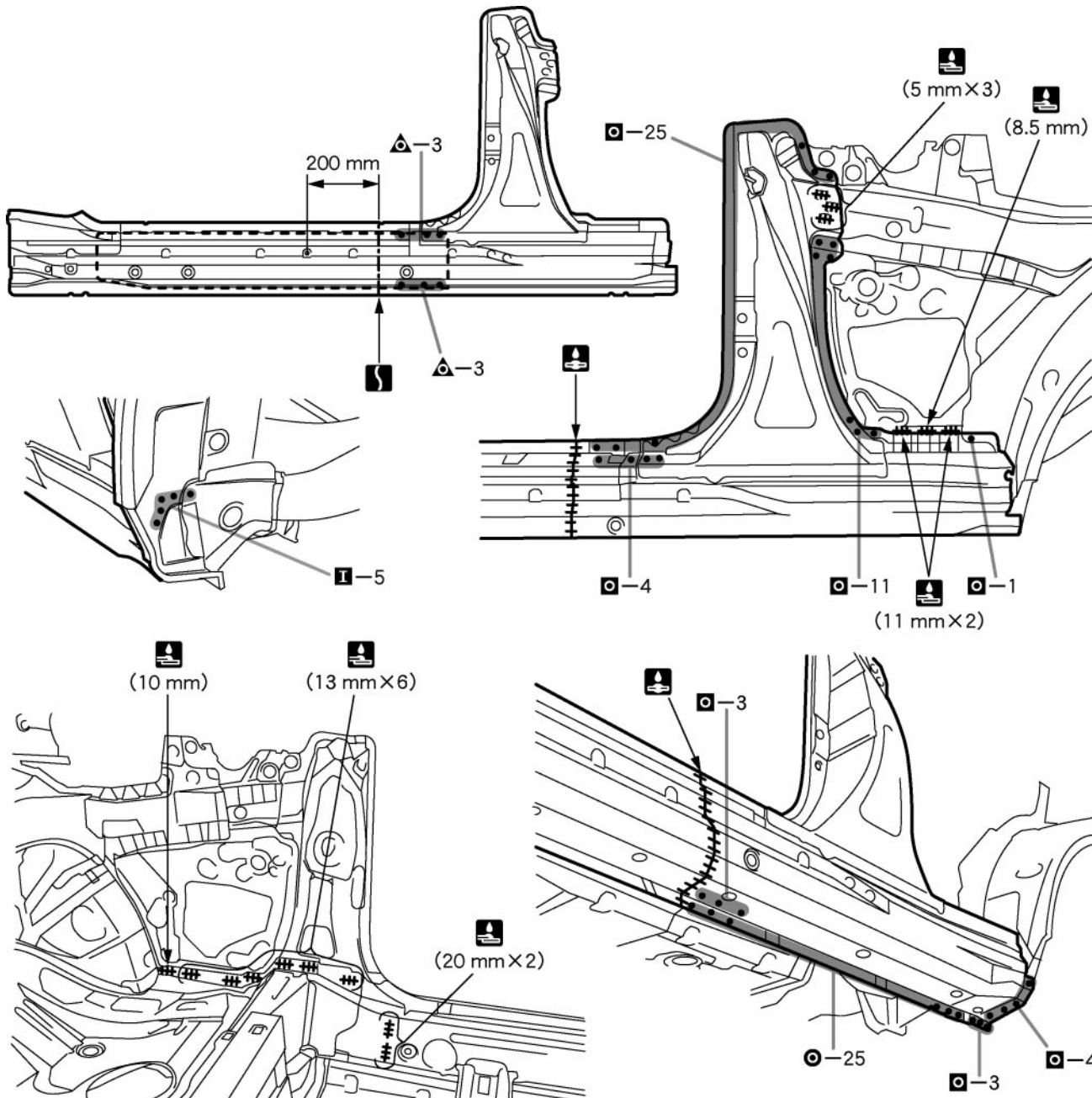


F17025

200 mm (7.87 in.)

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F17026

POINT

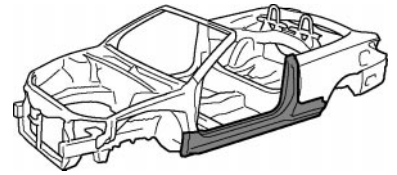
- 1 Inspect the fitting of the quarter panel and front door, etc., before welding, since this affects the appearance of the finish.

5 mm (0.20 in.)	8.5 mm (0.33 in.)	10 mm (0.39 in.)	11 mm (0.43 in.)
13 mm (0.51 in.)	20 mm (0.79 in.)	200 mm (7.87 in.)	

ROCKER PANEL (ASSY)

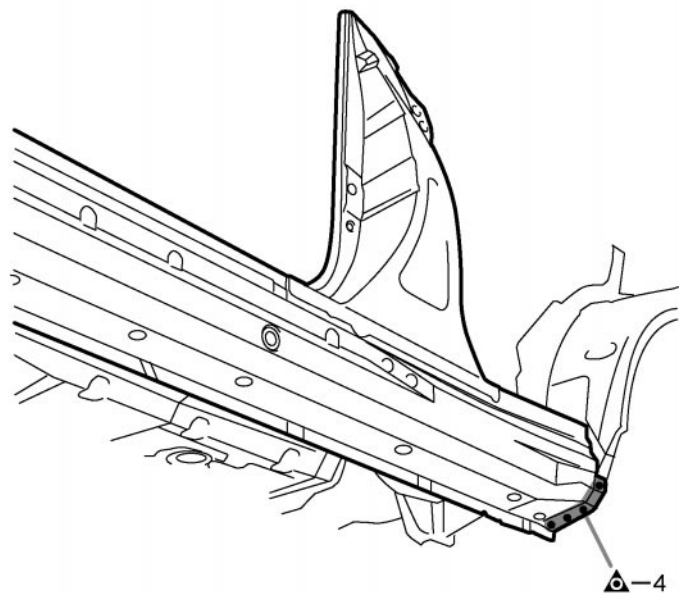
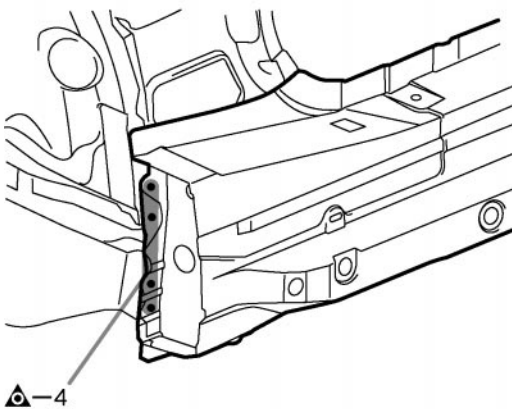
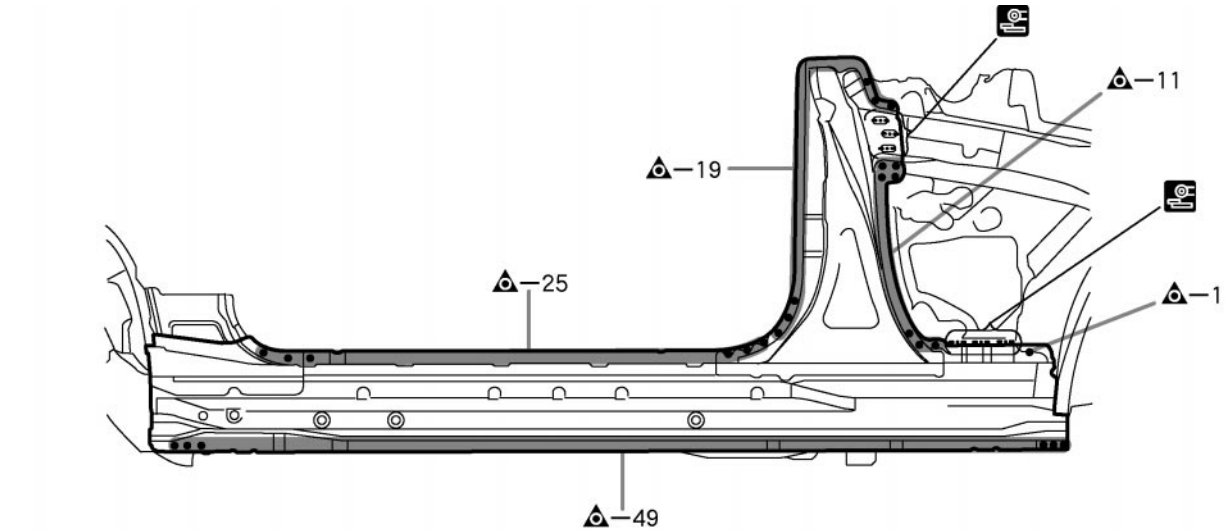
REPLACEMENT

With the front body pillar, belt anchor reinforcement and quarter panel removed.

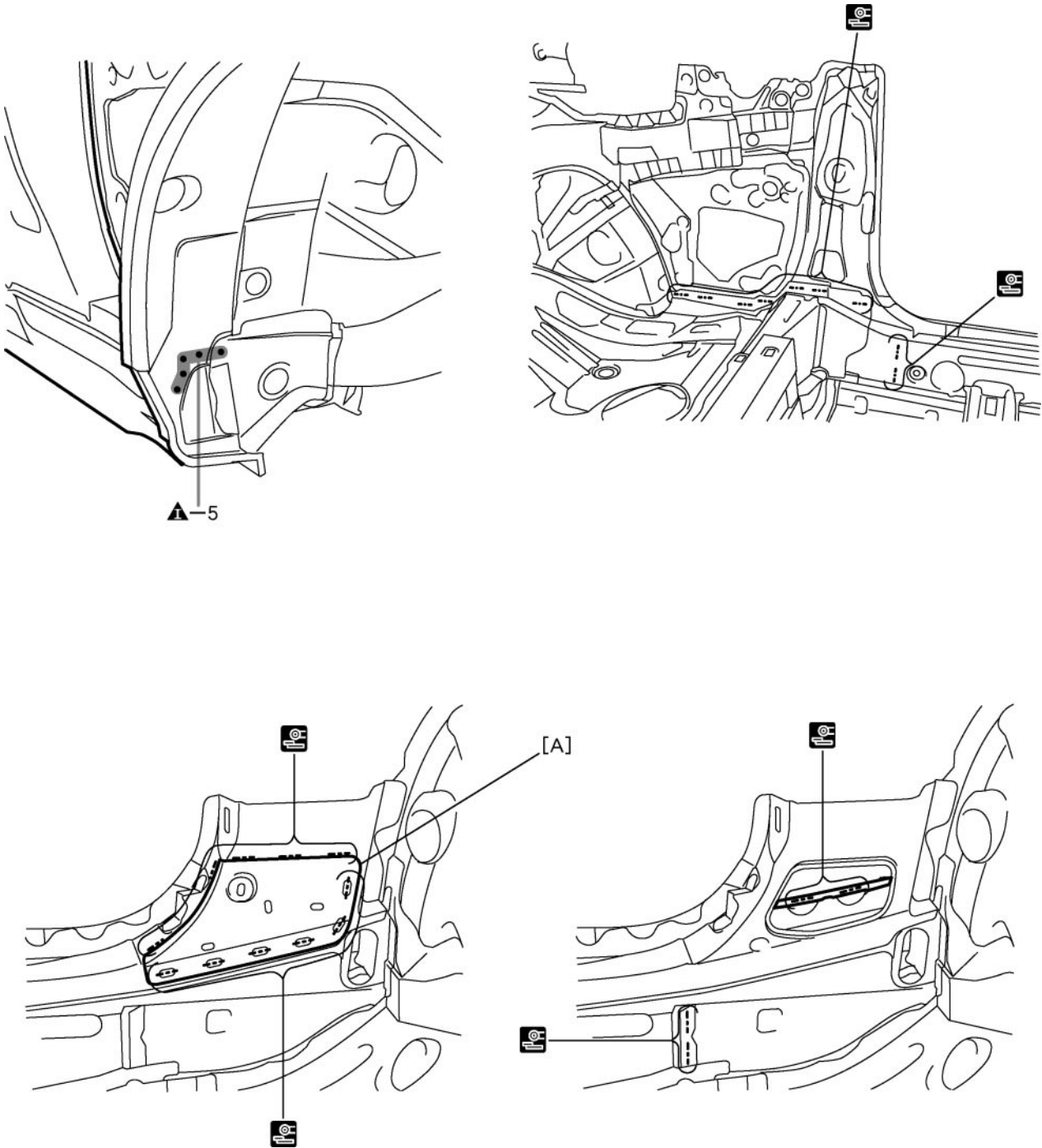


F17027A

REMOVAL



F17027



F17028

POINT

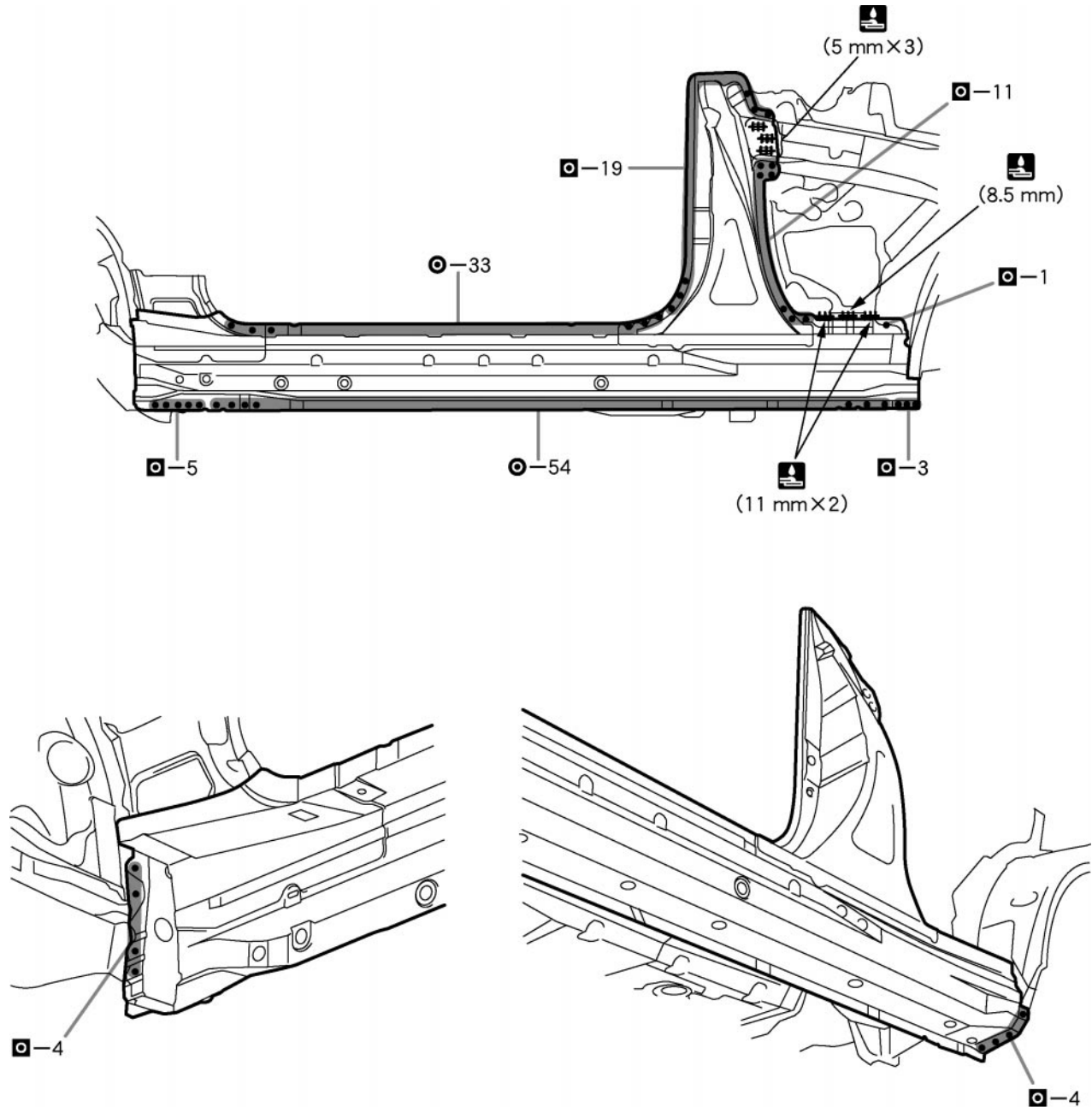
- 1 After removing the [A], remove the rocker panel.

PART NAME

[A] Floor Side Rail Plate

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F17029

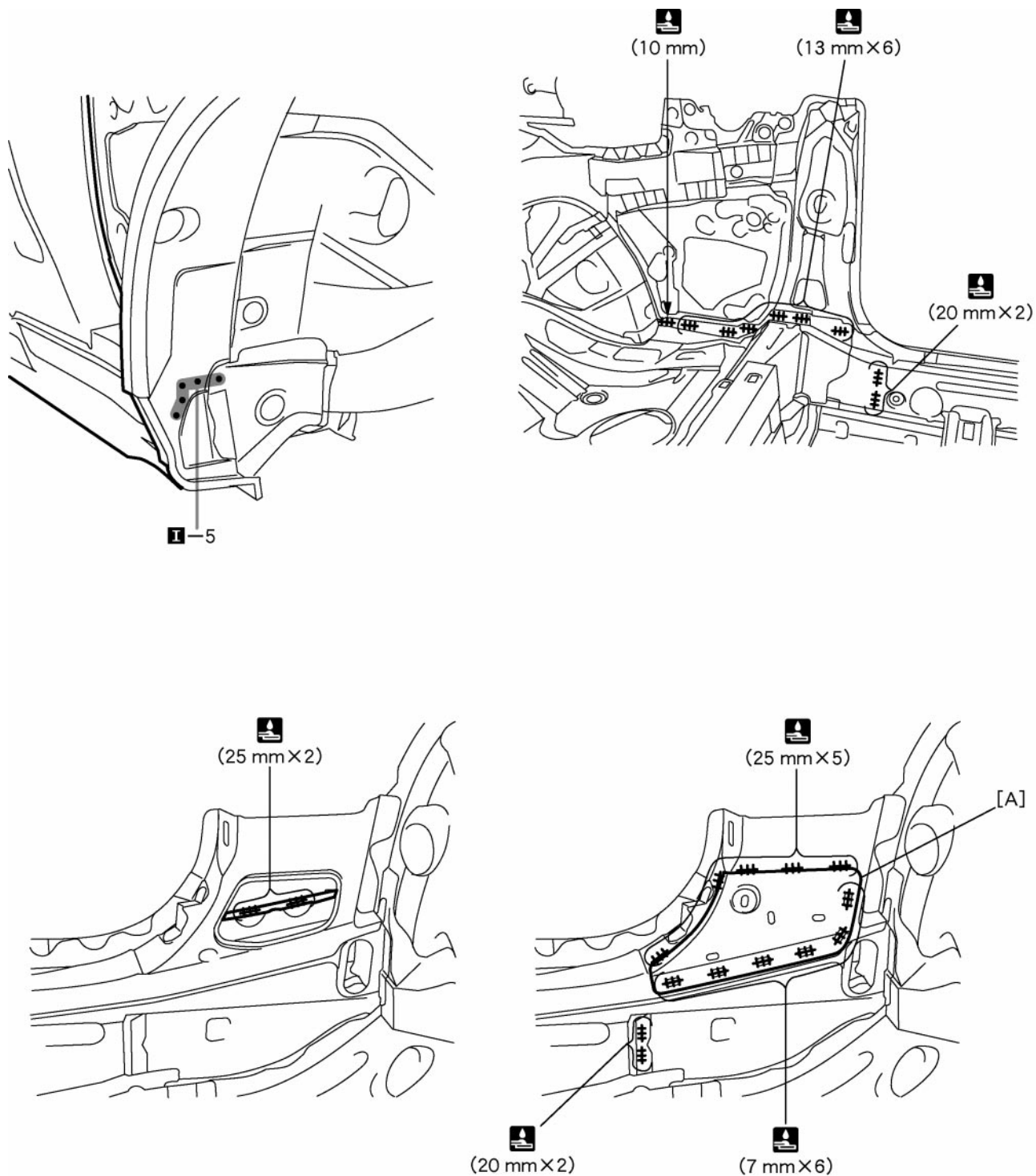
POINT

- 1 Inspect the fitting of the quarter panel and front door, etc., before welding, since this affects the appearance of the finish.

5 mm (0.20 in.)

8.5 mm (0.33 in.)

11 mm (0.43 in.)



F17030

PART NAME

[A] Floor Side Rail Plate

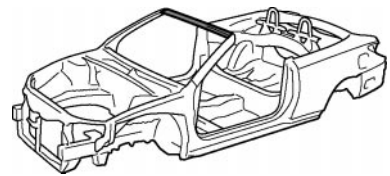
7 mm (0.28 in.)

10 mm (0.39 in.)

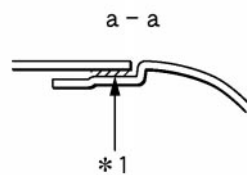
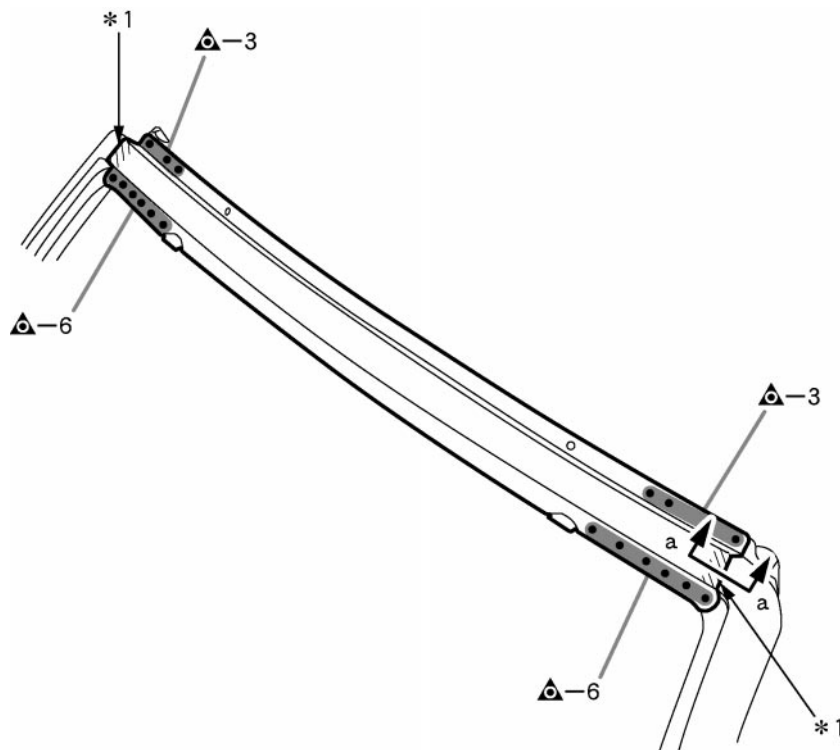
13 mm (0.51 in.)

20 mm (0.79 in.)

25 mm (0.98 in.)

WINDSHIELD HEADER PANEL (ASSY)**REPLACEMENT**

F17050A

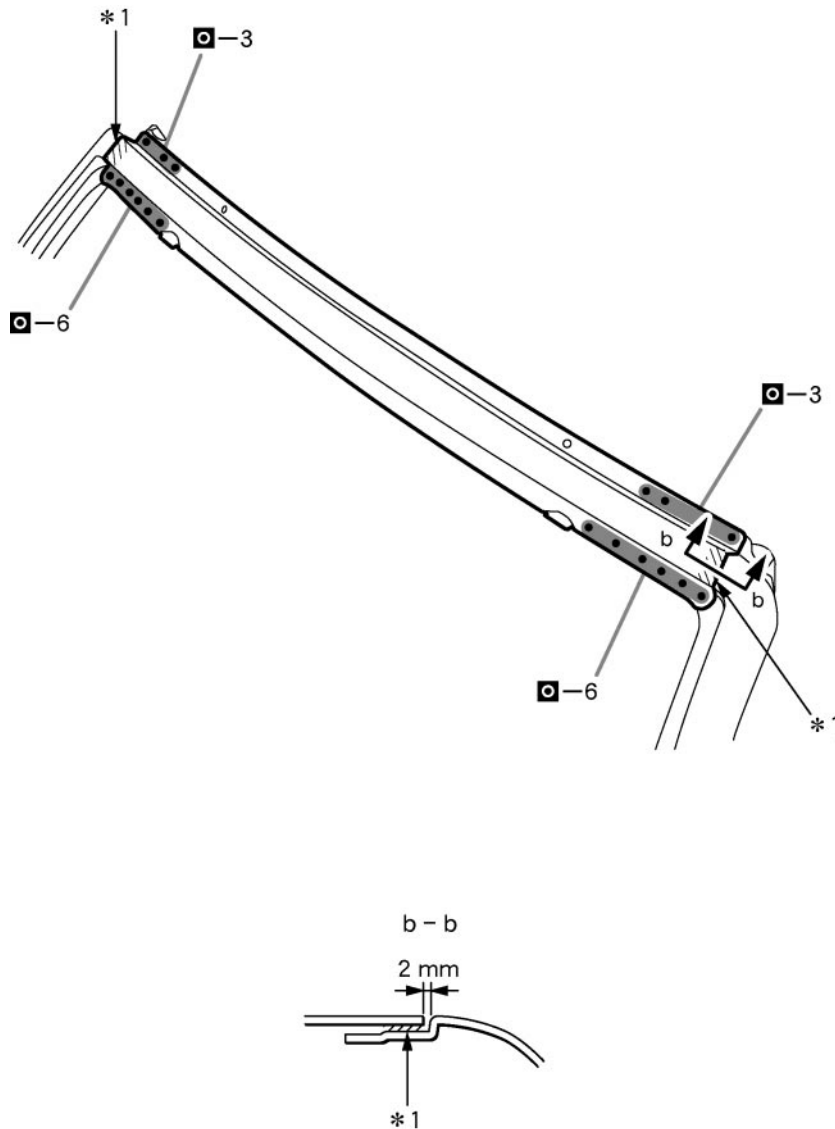
REMOVAL**POINT**

1 *1 in illustration above indicates where the adhesive is.

F17050

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F17051

POINT

- 1 Inspect the fitting of the windshield glass, etc., before welding, since this affects the appearance of the finish.
- 2 Apply adhesive (3M™ Automix™ Panel Bonding Adhesive 08115) to the area indicated by *1 in illustration.

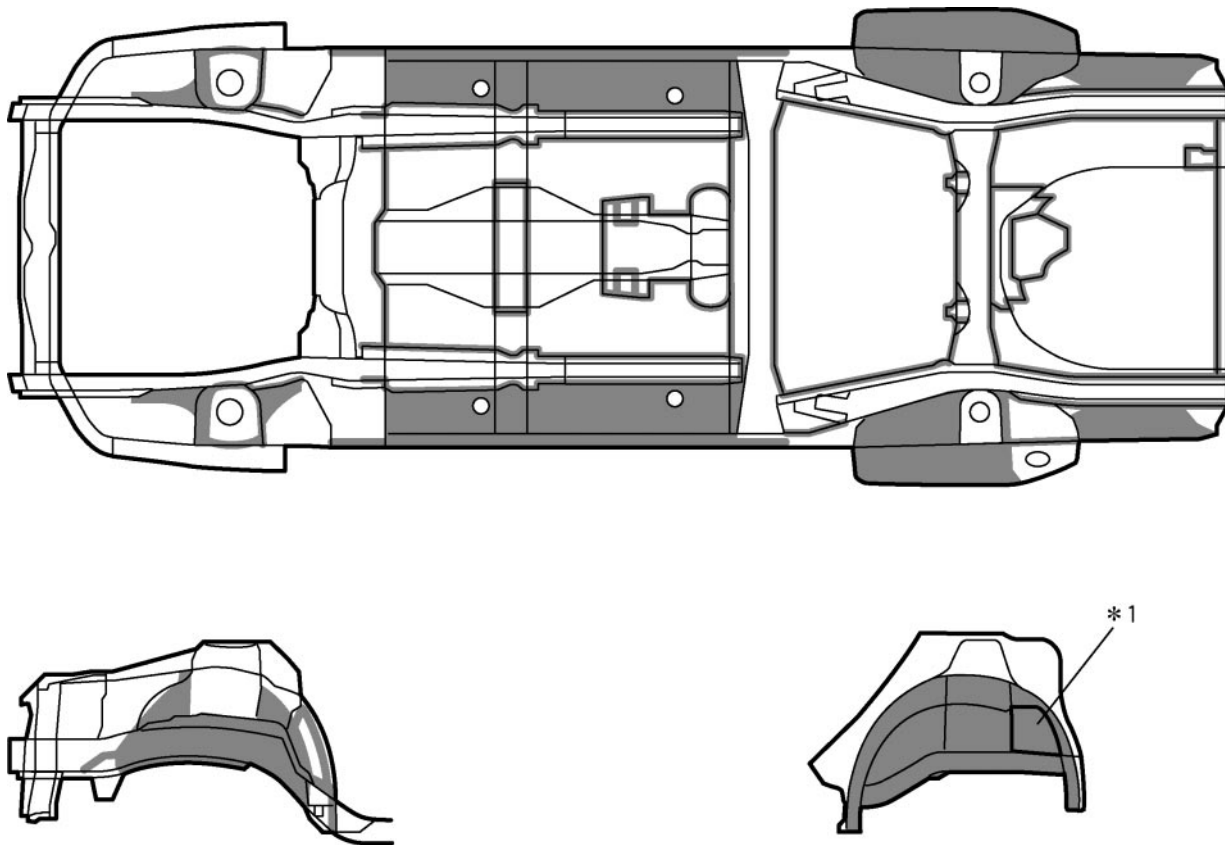
HINT:

- 1) Apply enough adhesive for the panels to stick to each other.

BODY PANEL UNDERCOATING AREAS

HINT:

- 1) First wipe off any dirt, grease or oil with a rag soaked in a grease, wax and silicone remover.
- 2) Cover the surrounding areas with masking paper to avoid coating unnecessary areas. If other areas are accidentally coated, wipe off the coating immediately.
- 3) Apply the first coating of undercoat to all welded areas and panel joints, then apply a second coat over the entire area.
- 4) Do not coat parts which become hot, such as the tailpipe, or moving parts, such as the propeller shaft.
- 5) Besides the locations described below, apply undercoating to all weld points under the body to insure corrosion prevention.
- 6) Be sure to seal the edge of the flange of the member and bracket with undercoating.
- 7) If undercoat is damaged by peeling, cracks, etc., be sure to repair as necessary.
- 8) Before the undercoat apply sealer allowing rust prevention to be attained.



F17004

POINT

- 1 *1: RH Only

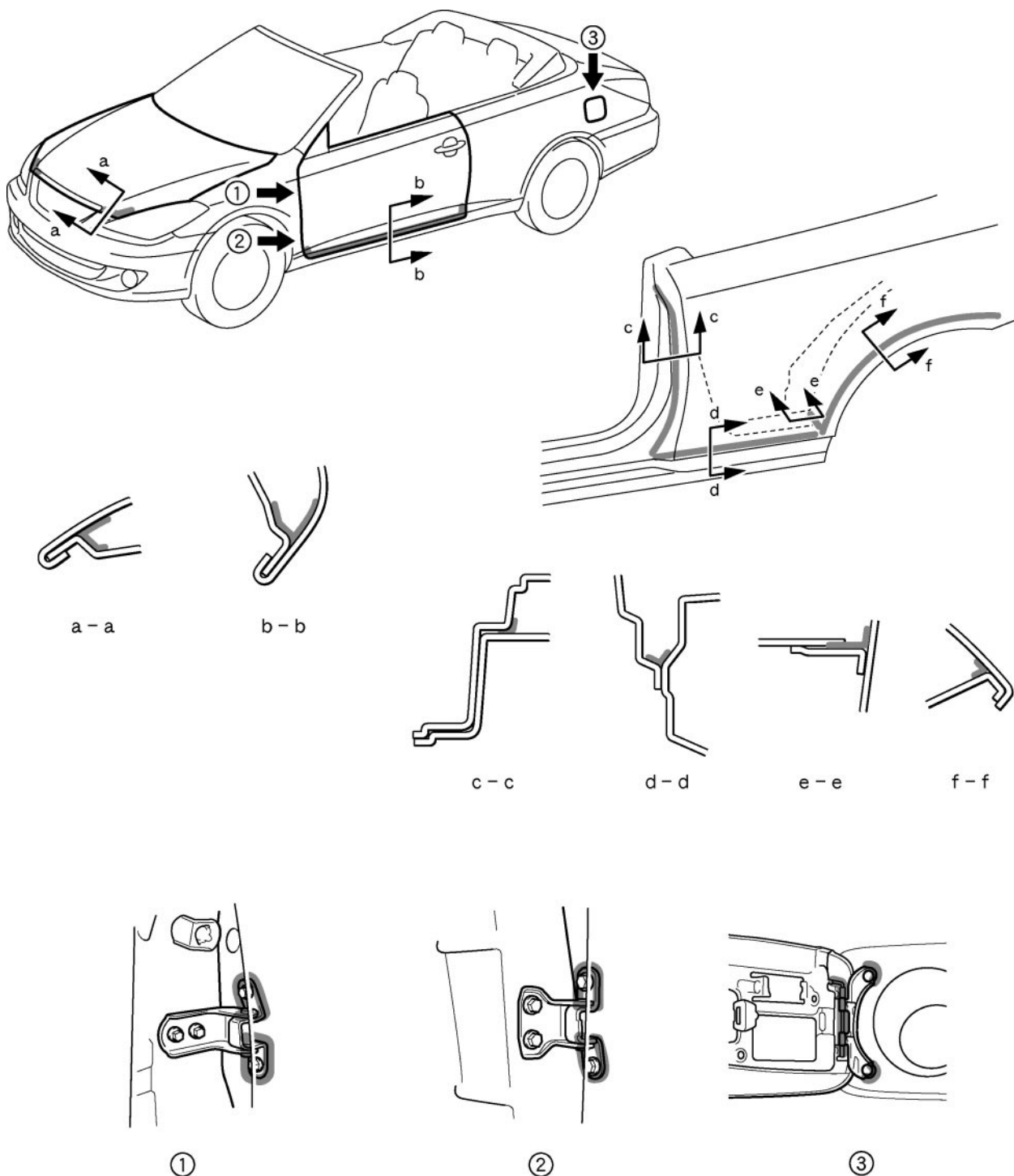
REFERENCE

Referring to the notes above, undercoating should be applied according to the specifications for your country.

BODY PANEL ANTI-RUST AGENT (WAX) APPLICATION AREAS

HINT:

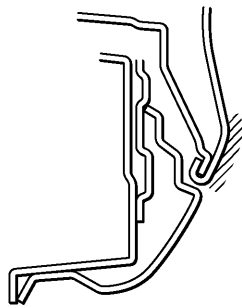
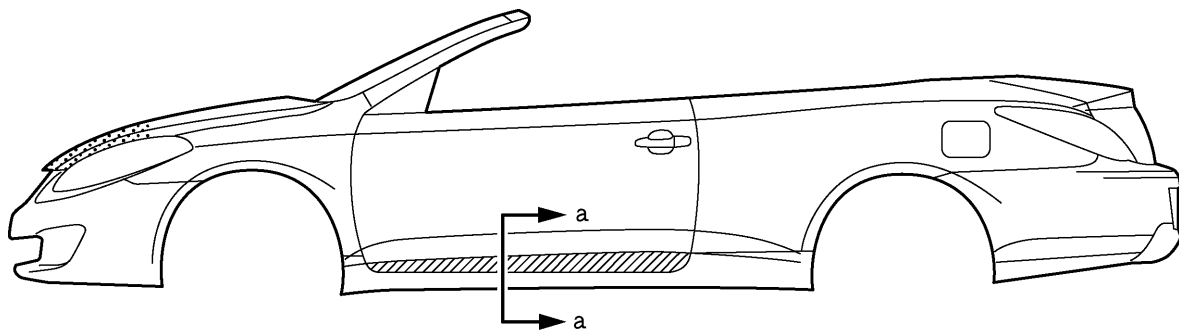
- 1) Whenever adjusting the doors and hoods, apply anti-rust agent (wax) around the hinges.
- 2) Even if partially repairing a part, apply anti-rust agent (wax) over the entire application area of the part.
- 3) Wipe off the anti-rust agent immediately with a rag soaked in a grease, wax and silicone remover, if accidentally applied to other areas.



BODY PANEL ANTI-CHIPPING PAINT APPLICATION AREAS

HINT:

- 1) Anti-chipping paint should be applied to some areas before the second coat and to others after the top coat.
- 2) If other areas are accidentally coated, wipe off the paint immediately with a rag soaked in grease, wax and silicone remover.



a - a

F17007



URETHANE



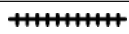
SOFT-CHIP PRIMER

—

BODY PANEL SEALING AREAS

HINT:

- 1) Prior to applying body sealer, clean the area with a rag soaked in a grease, wax and silicone remover.
- 2) If weld-through primer was used, first wipe off any excess and coat with anti-corrosion primer before applying body sealer.
- 3) Wipe off excess body sealer with a rag soaked in a grease, wax and silicone remover.
- 4) If body sealer is damaged by peeling, cracks, etc., be sure to repair as necessary.

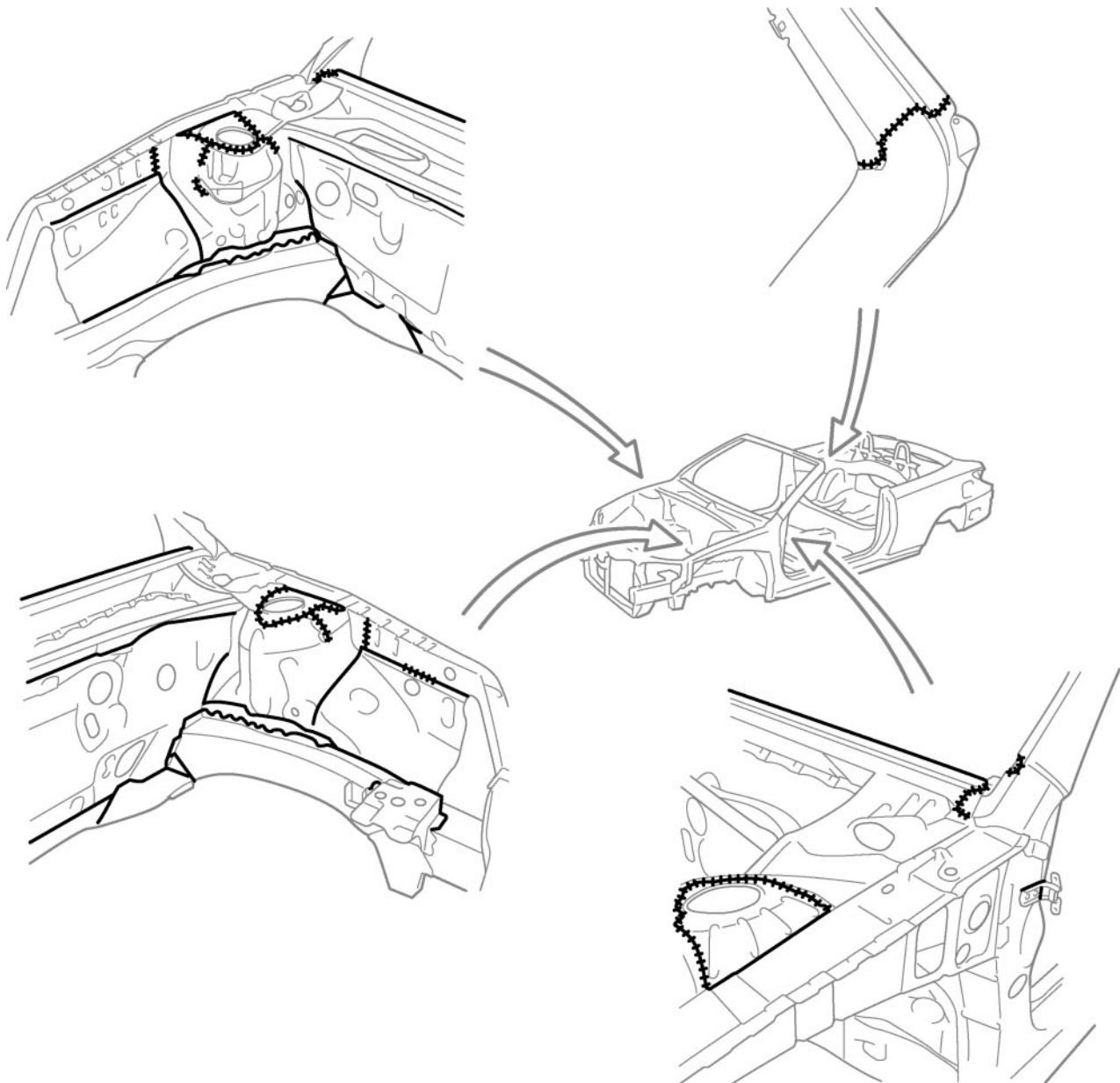


Flat Finishing

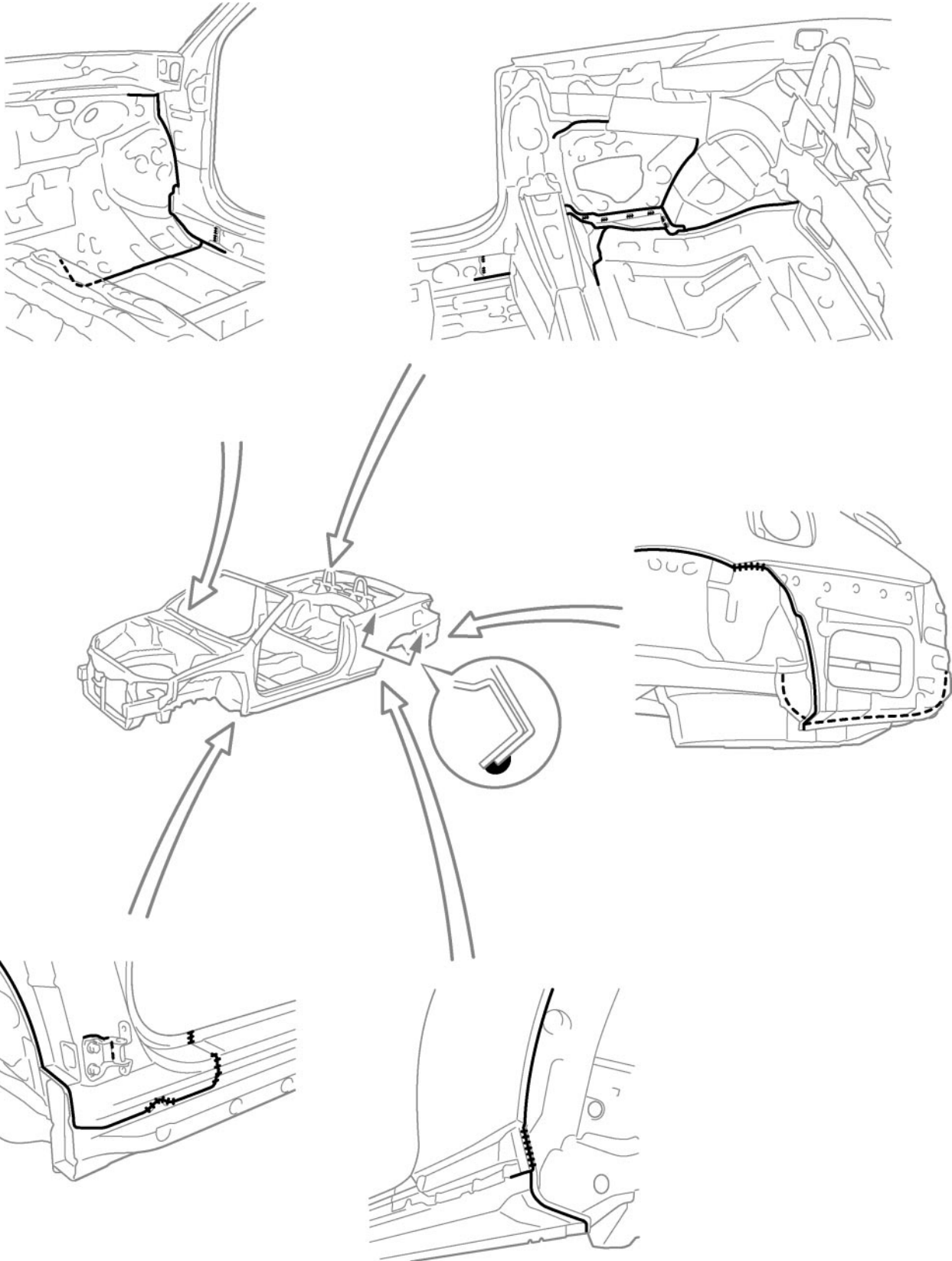


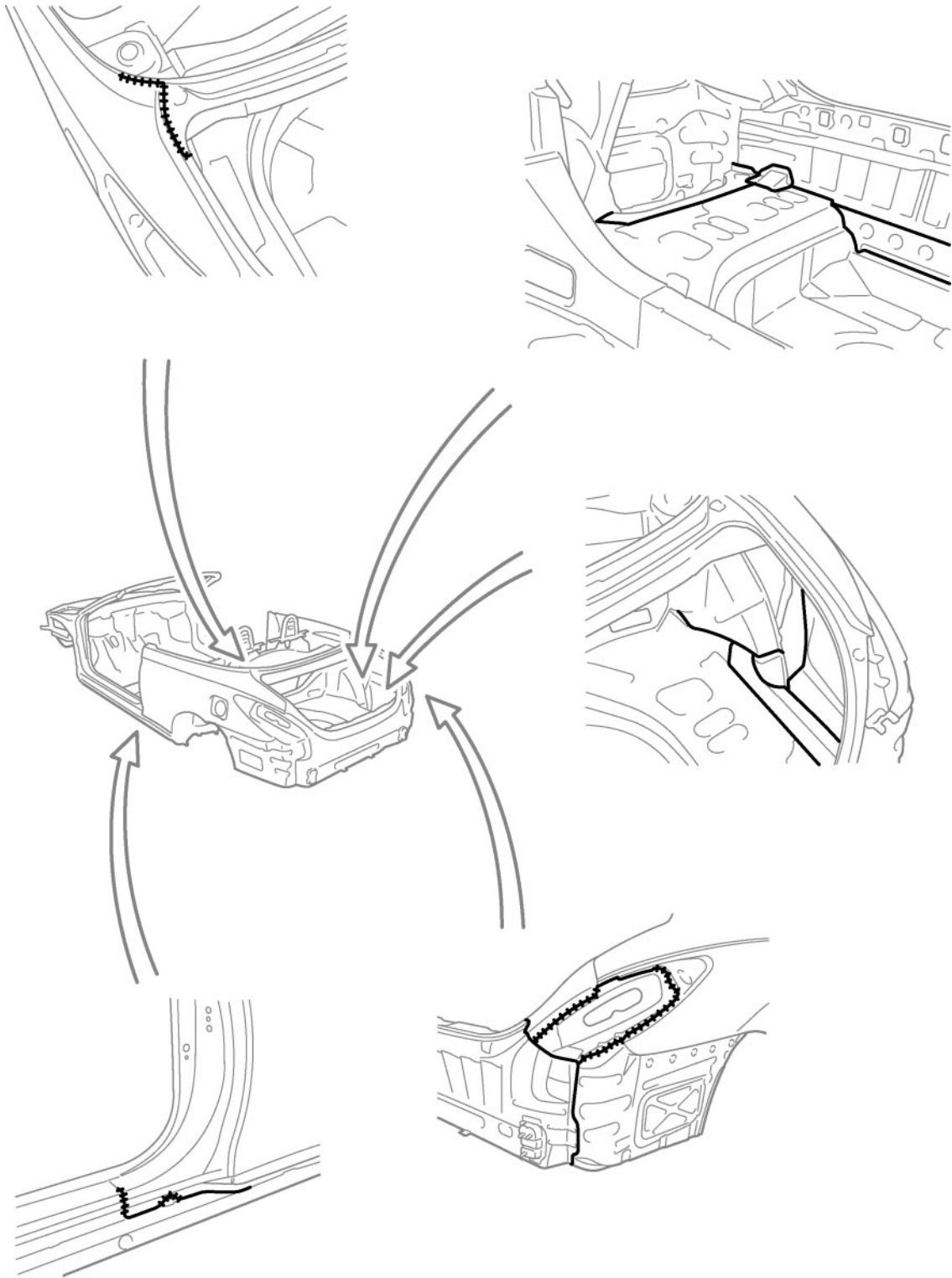
No Flat Finishing

1. ENGINE COMPARTMENT

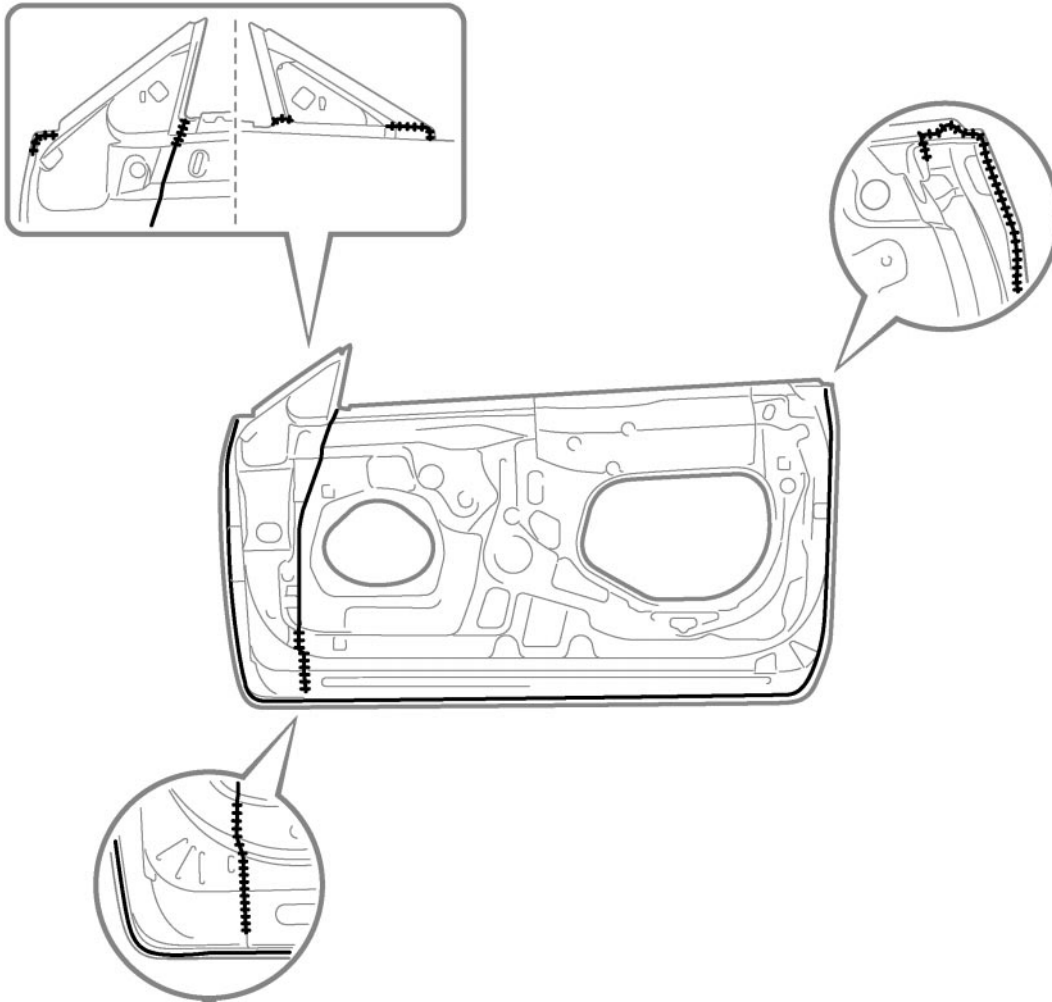


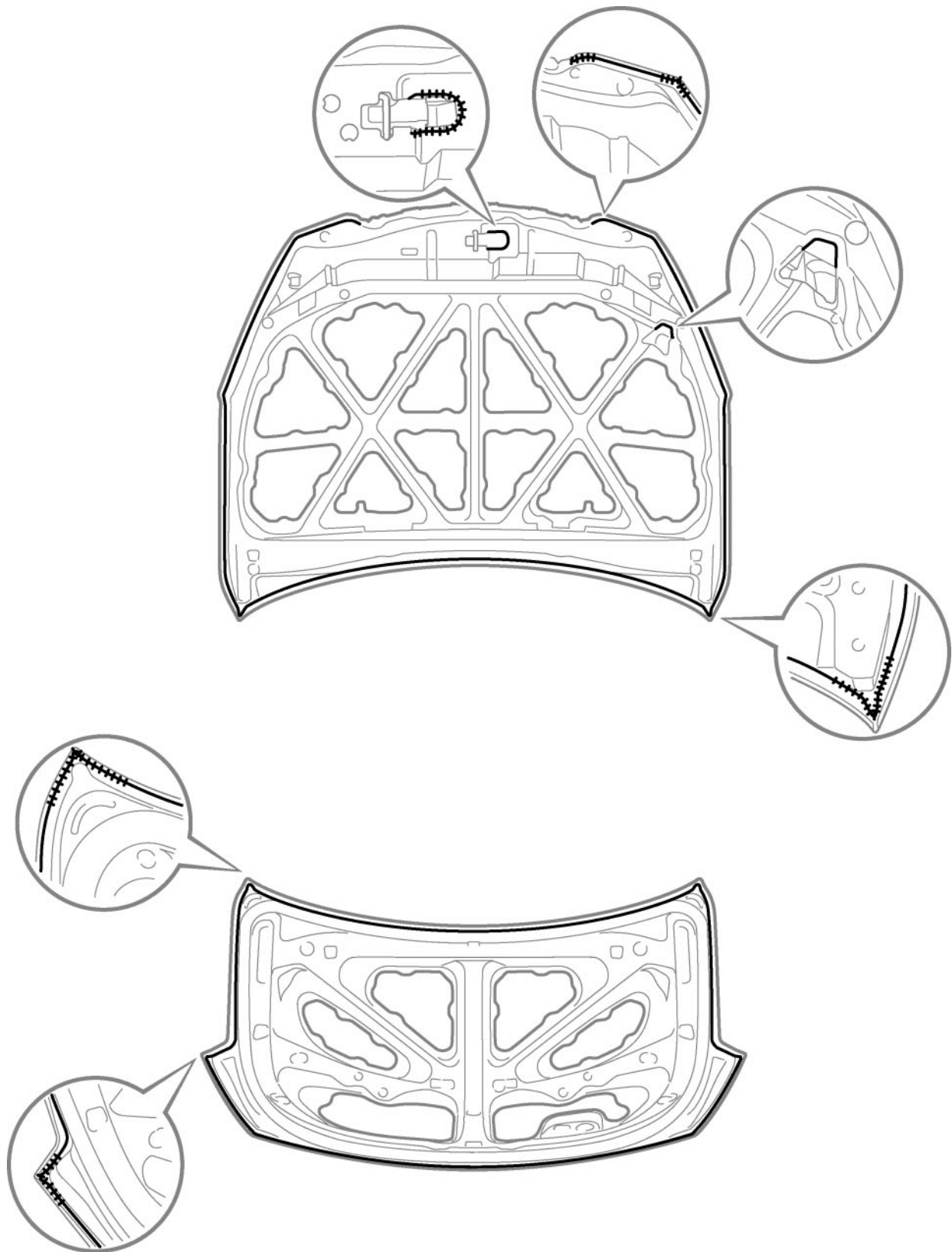
2. INSIDE



3. REAR LUGGAGE COMPARTMENT

4. DOOR PARTS



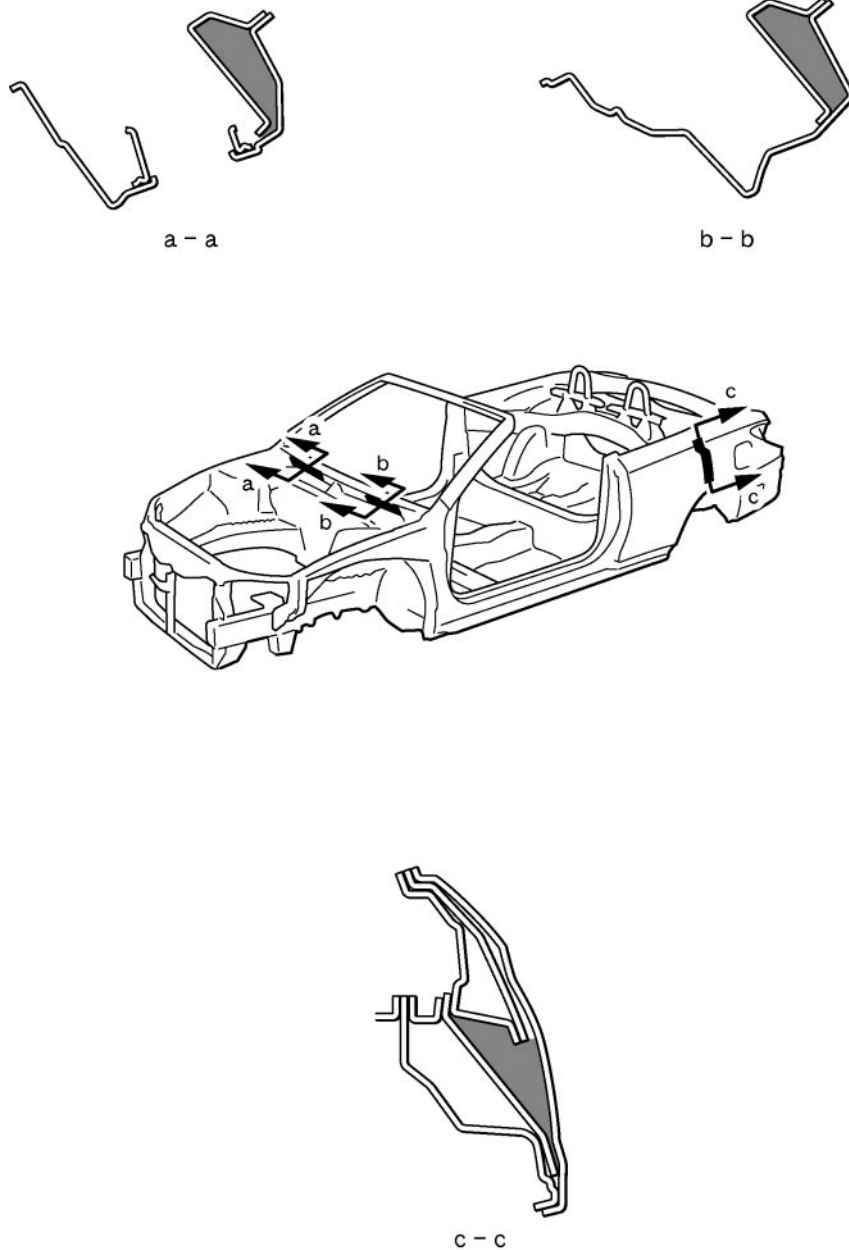


FOAMED MATERIAL APPLICATION AREAS

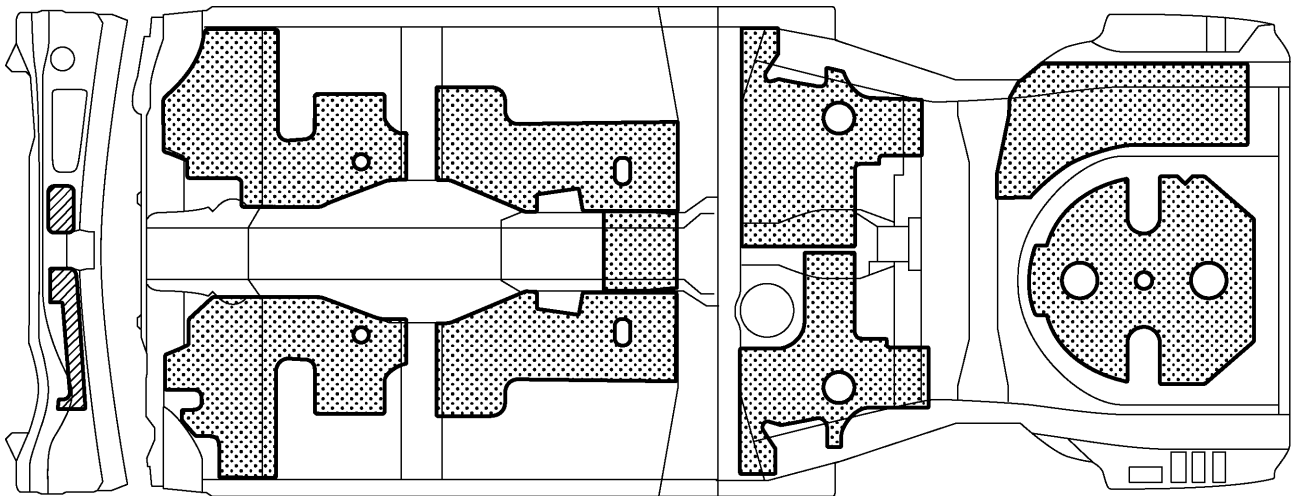
The sections shown in the figure below are filled with foamed material to provide noise insulation. After repairing these sections or their peripheries, refill with foamed materials

HINT:

- 1) Use the service holes located on the reverse side of the body panel to refill with foamed materials.
- 2) When handling foamed material, follow the directions of the material's manufacturer.



SILENCER SHEET INSTALLATION AREAS

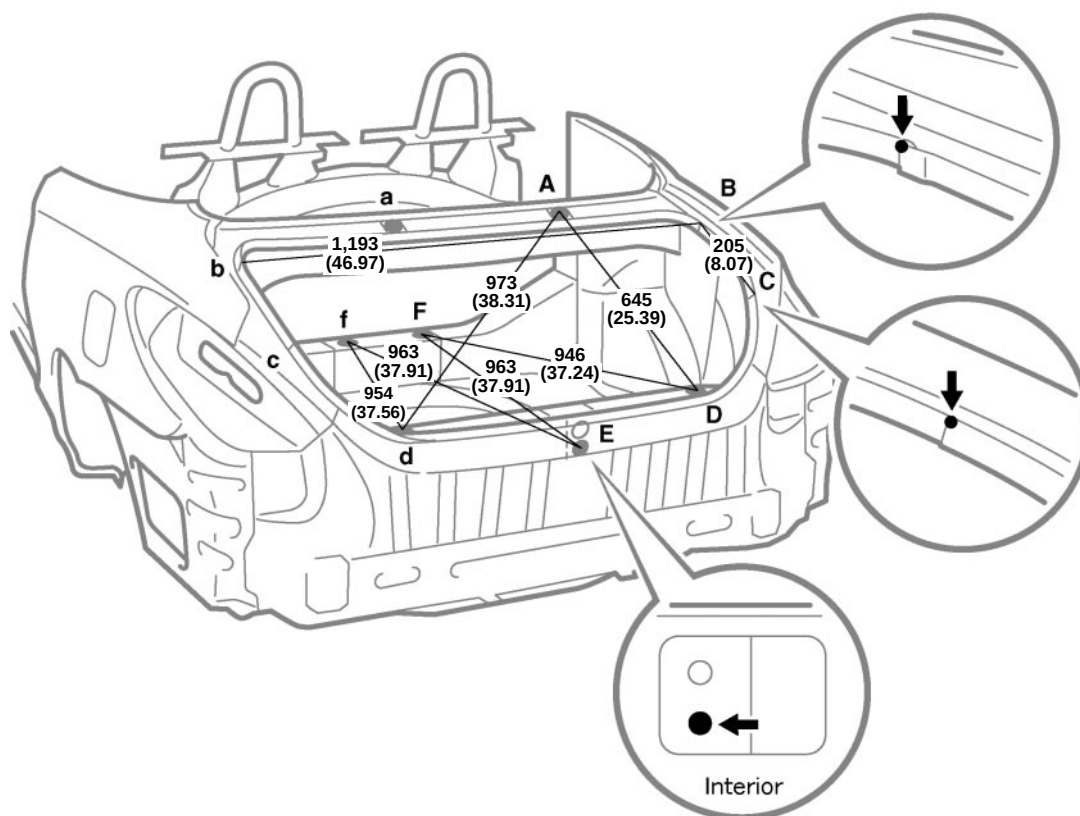


	2.8 mm (0.110 in.)		4.2 mm (0.165 in.)	—
---	--------------------	---	--------------------	---

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Radiator upper support standard hole	10 (0.39)	H, h	Radiator support standard hole	10 (0.39)
B, b	Front spring support hole-inner	12.5 (0.492)	I	Hood lock support installation nut	6 (0.24) nut
C, c	Hood hinge installation nut	8 (0.31) nut	J, j	Front bumper reinforcement installation nut	10 (0.39) nut
D	Cowl top inner panel installation hole	7 (0.28)	K, k	Fender apron plate standard hole	10 (0.39)
E, e	Front side member standard hole	18 (0.71)	L, l	Radiator upper support installation nut	6 (0.24) nut
F, f	Front side member standard hole	10 (0.39)	M, m	Front fender installation nut	6 (0.24) nut
G, g	Radiator upper support installation nut	6 (0.24) nut	N, n	Front fender installation nut	6 (0.24) nut

BODY OPENING AREAS (Rear View)

(Three-Dimensional Distance)



Vehicle Dimensions Left ↔ Right

B-c or b-C	C-c	D-f	d-F
1,204 (47.40)	1,181 (46.50)	1,016 (40.00)	1,029 (40.51)

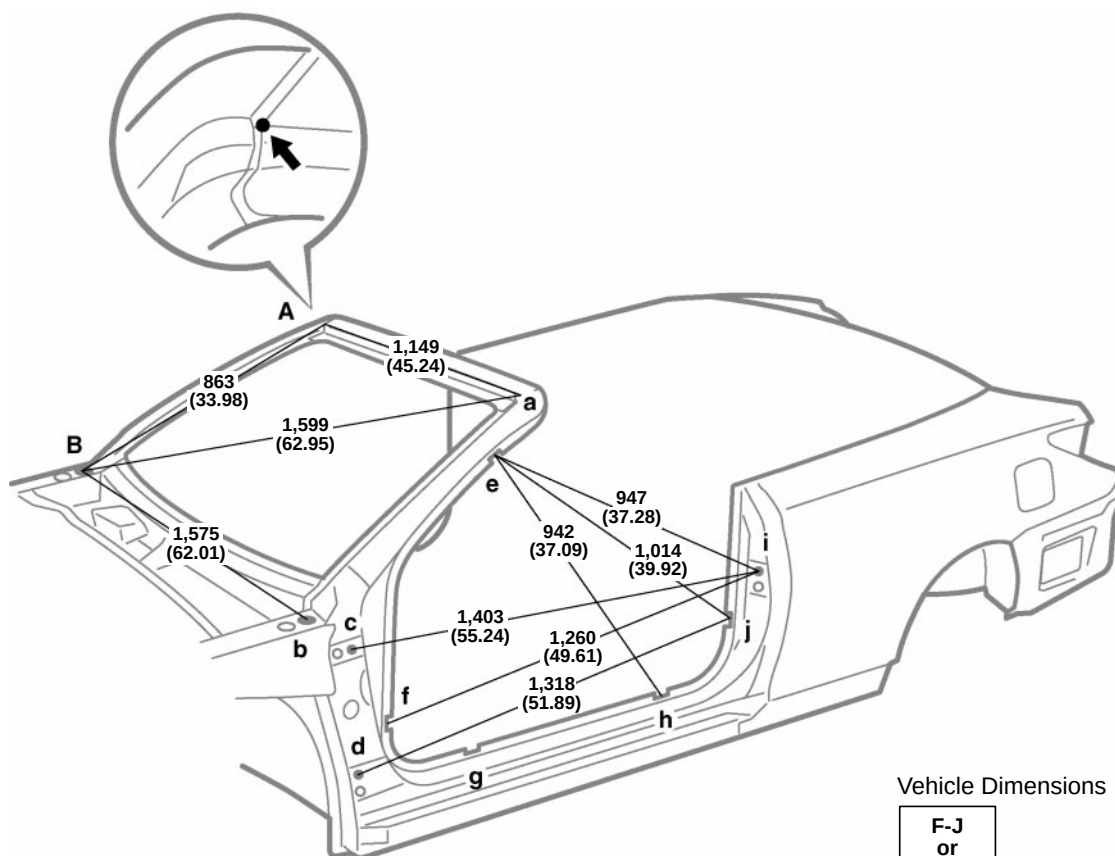
HINT: For symbols, capital letters indicate right side of vehicle, small letters indicate left side of vehicle (Seen from rear).

mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Upper back panel standard hole	18.5 (0.728)	D, d	Rear floor finish plate installation hole	8.5 (0.335)
B, b	Quarter panel/Upper back reinforcement adjoining portion	—	E	Luggage compartment door lock striker installation nut	6 (0.24) nut
C, c	Luggage compartment opening trough/Quarter panel adjoining portion	—	F, f	Rear floor center member No.2 reinforcement standard hole	10 (0.39)

BODY OPENING AREAS (Side View)

(Three-Dimensional Distance)



Vehicle Dimensions Left ↔ Right

E-e	F-f	G-g	H-h	I-i	J-j
1,290 (50.79)	1,492 (58.74)	1,492 (58.74)	1,492 (58.74)	1,592 (62.68)	1,478 (58.19)

E-f or e-F	E-h or e-H	F-h or f-H	F-i or f-I	F-j or f-J	G-h or g-H	H-i or h-I	I-j or i-J
1,605 (63.19)	1,677 (66.02)	1,749 (68.86)	1,991 (78.39)	1,896 (74.65)	1,639 (64.53)	1,616 (63.62)	1,551 (61.06)

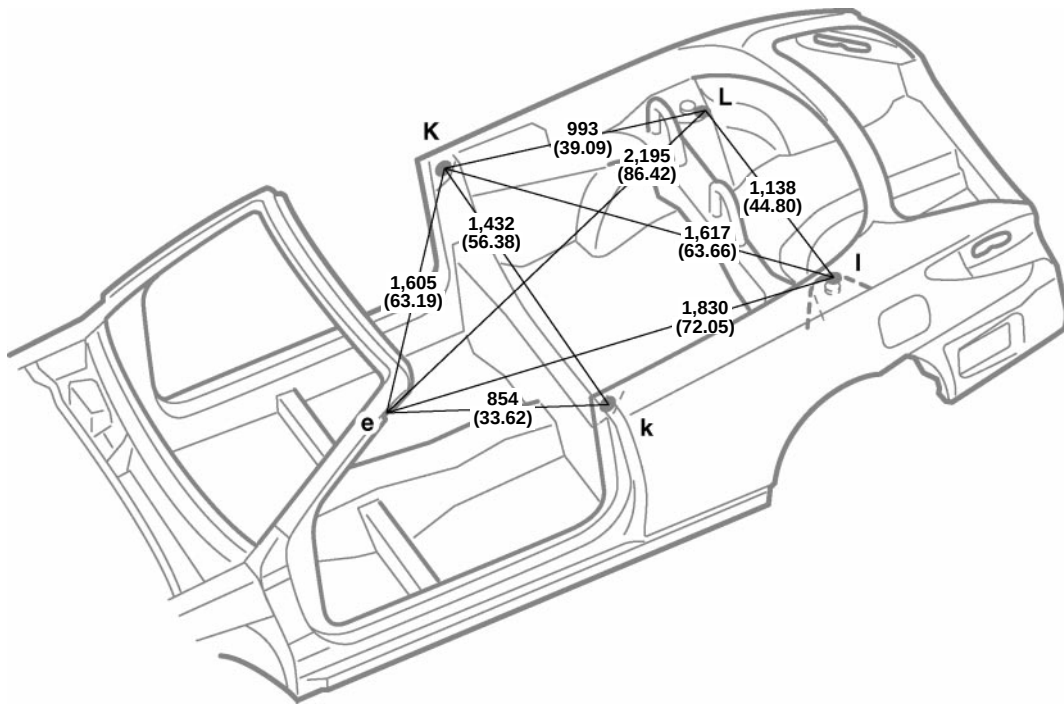
HINT: For symbols, capital letters indicate right side of vehicle, small letters indicate left side of vehicle (Seen from rear).

mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Windshield header panel/Front body pillar adjoining portion	—	F, f	Front body pillar assembly mark	—
			G, g	Rocker panel assembly mark	—
B, b	Hood hinge installation nut-rear	8 (0.31) nut	H, h	Rocker panel assembly mark	—
C, c	Front door hinge installation nut	8 (0.31) nut	I, i	Front door lock striker installation nut	8 (0.31) nut
D, d	Front door hinge installation nut	8 (0.31) nut	J, j	Quarter panel assembly mark	—
E, e	Front body pillar assembly mark	—	—	—	—

BODY OPENING AREAS (Side View) (Cont'd)

(Three-Dimensional Distance)

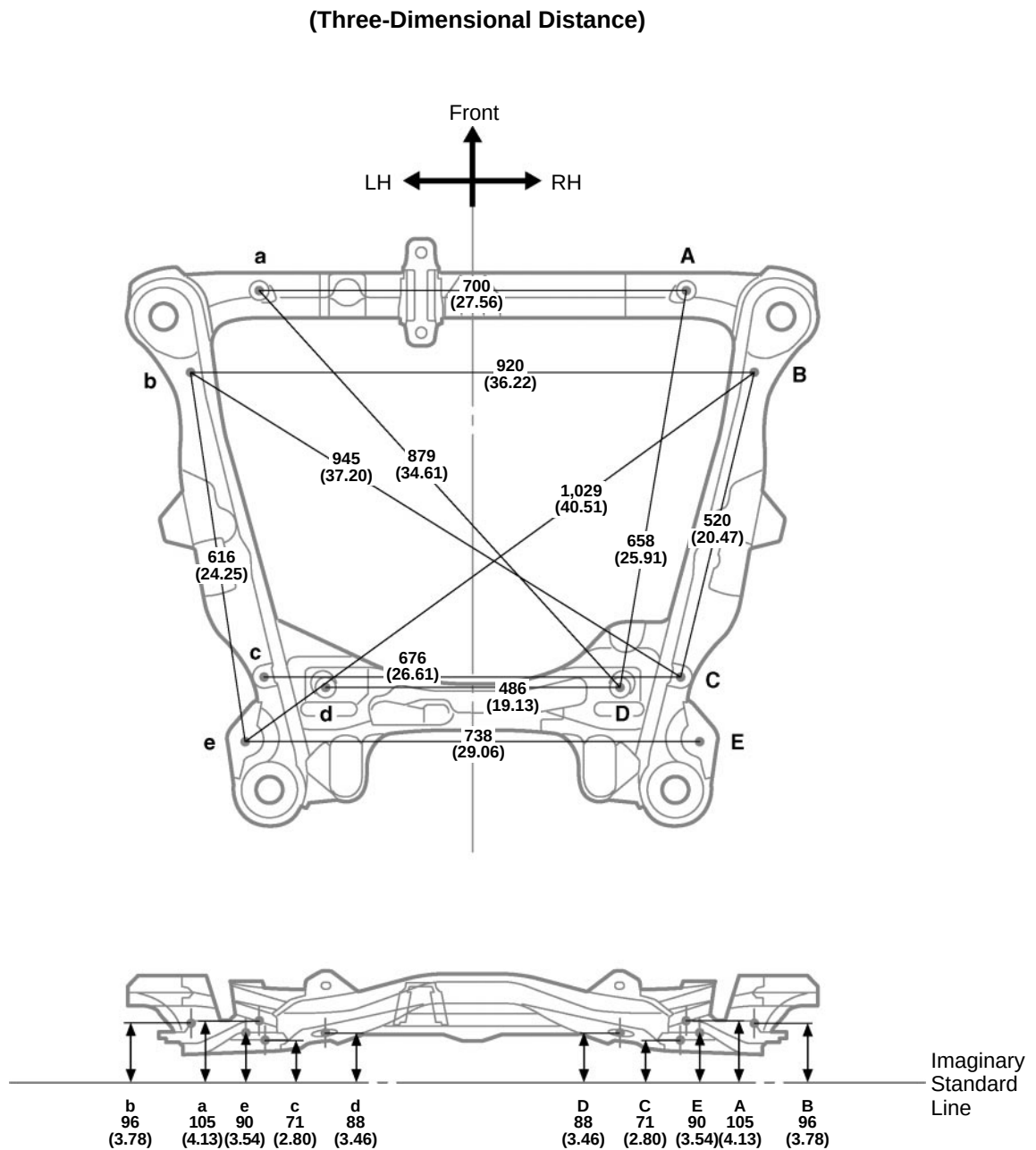


HINT: For symbols, capital letters indicate right side of vehicle,
small letters indicate left side of vehicle (Seen from rear).

mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
E, e	Front body pillar assembly mark	—	L, l	Rear spring support hole inner-rear	9.5 (0.374)
K, k	Front shoulder belt anchor installation nut	(7/16) nut	—	—	—

FRONT FRAME



mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Front frame standard hole	13 (0.51)	D, d	Front frame standard hole	13 (0.51)
B, b	Front frame standard hole	13 (0.51)	E, e	Lower arm installation hole	15 (0.59)
C, c	Front frame standard hole	13 (0.51)	—	—	—

(Two-Dimensional Distance)

Front

LH RH

635 (25.00)

505 (19.88)

14 (0.55)

104 (4.09)

350 (13.78)

460 (18.11)

338 (13.31)

243 (9.57)

369 (14.53)

a

b

c

d

e

A

B

C

D

E

Imaginary Standard Line

b 96 (3.78)

a 105 (4.13)

e 90 (3.54)

c 71 (2.80)

d 88 (3.46)

D 88 (3.46)

C 71 (2.80)

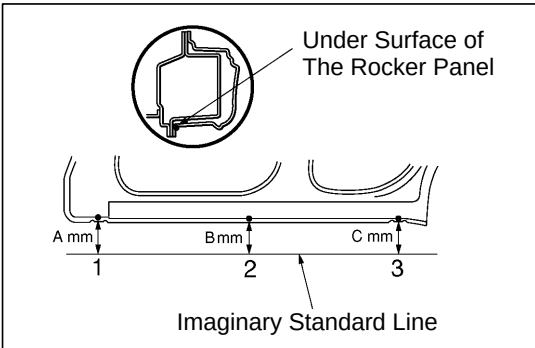
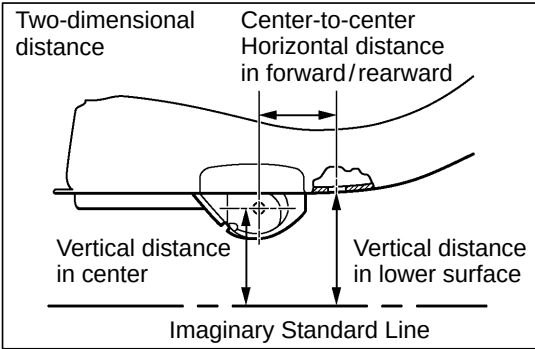
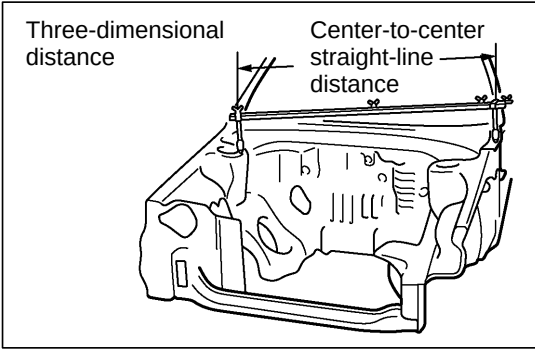
E 90 (3.54)

A 105 (4.13)

B 96 (3.78)

mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Front frame standard hole	13 (0.51)	D, d	Front frame standard hole	13 (0.51)
B, b	Front frame standard hole	13 (0.51)	E, e	Lower arm installation hole	13 (0.59)
C, c	Front frame standard hole	13 (0.51)	—	—	—

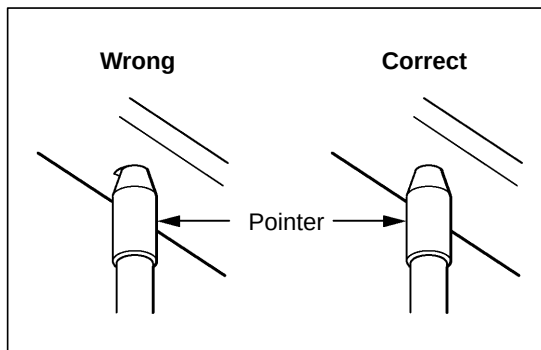
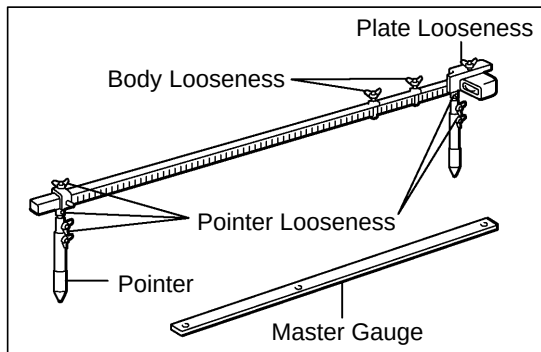


GENERAL INFORMATION

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

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



2. MEASURING

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

HINT:

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

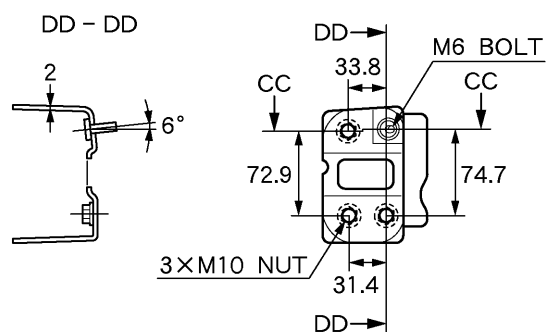
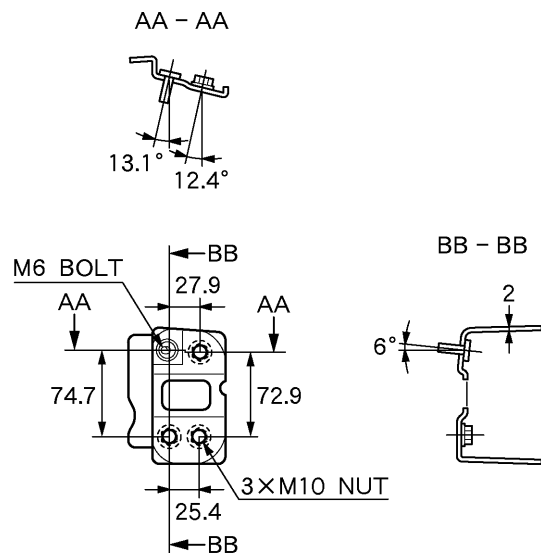
UNDER BODY

(Two-Dimensional Distance)

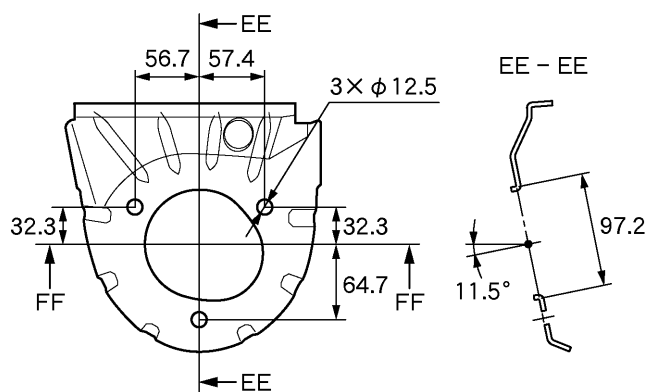
Front bumper mounting reinforcement

[RH]

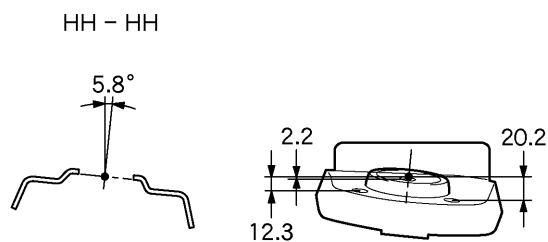
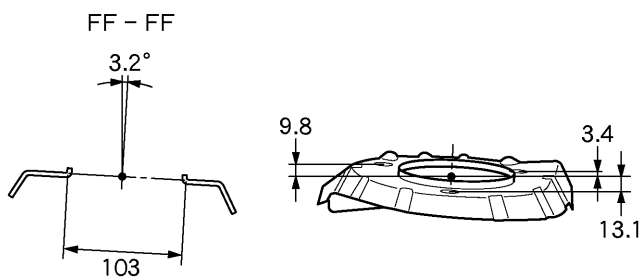
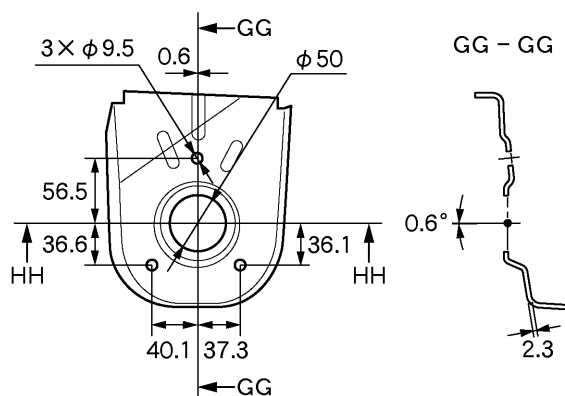
[LH]



Front spring support



Rear spring support

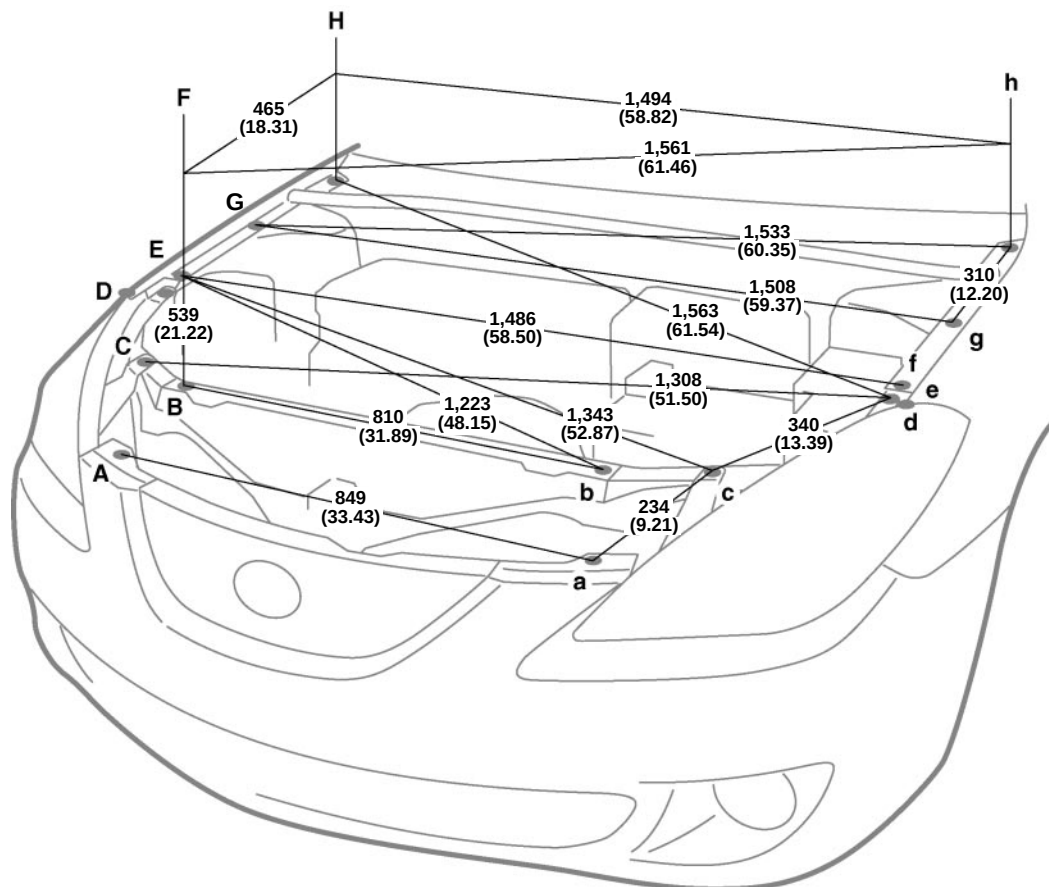


mm

REFERENCE VALUE

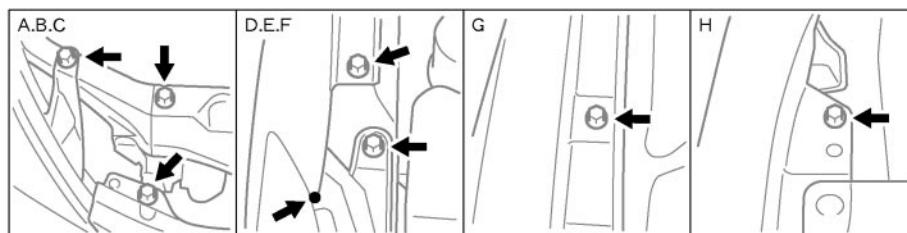
ENGINE COMPARTMENT

(Three-Dimensional Distance)



Vehicle Dimensions

A-c or a-C	C-c	C-F or c-f	D-d	E-e	E-H or e-h
995 (39.17)	1,110 (43.70)	409 (16.10)	1,528 (60.16)	1,450 (57.09)	533 (20.98)



HINT:

- These values are actual measurements made on this model. Use these reference values.
- Measure point "F, f", "G, g" and "H, h" with the hood to front fender removed.

mm (in.)

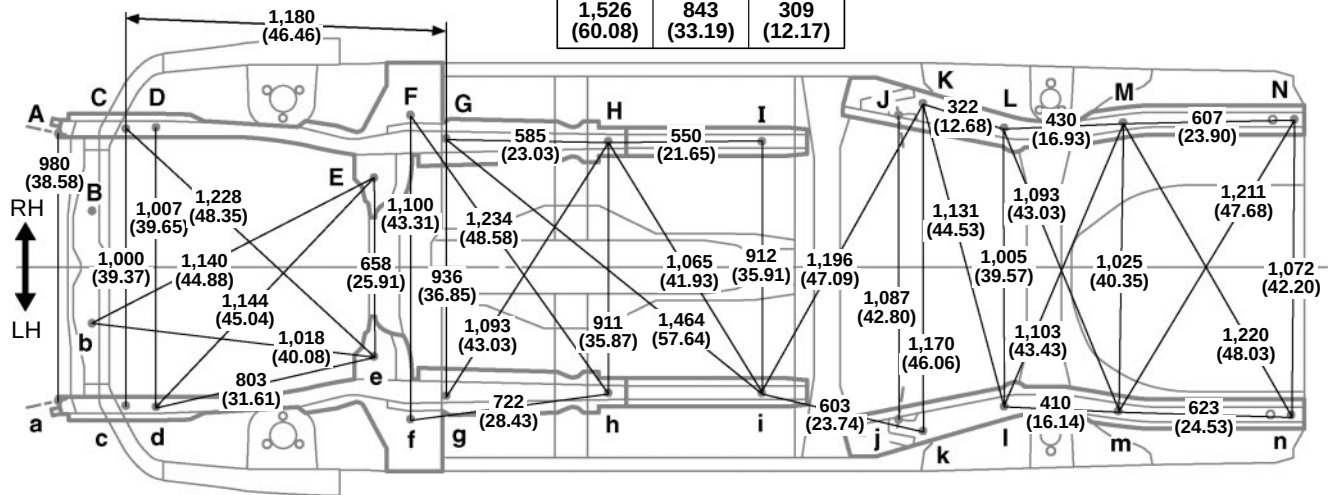
Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Front bumper installation bolt	—	E, e	Headlight installation screw	—
B, b	Radiator upper support installation bolt	—	F, f	Front fender installation bolt	—
C, c	Headlight installation crip	—	G, g	Front fender installation bolt	—
D, d	Front end of front fender	—	H, h	Front fender installation bolt	—

UNDER BODY

(Three-Dimensional Distance)

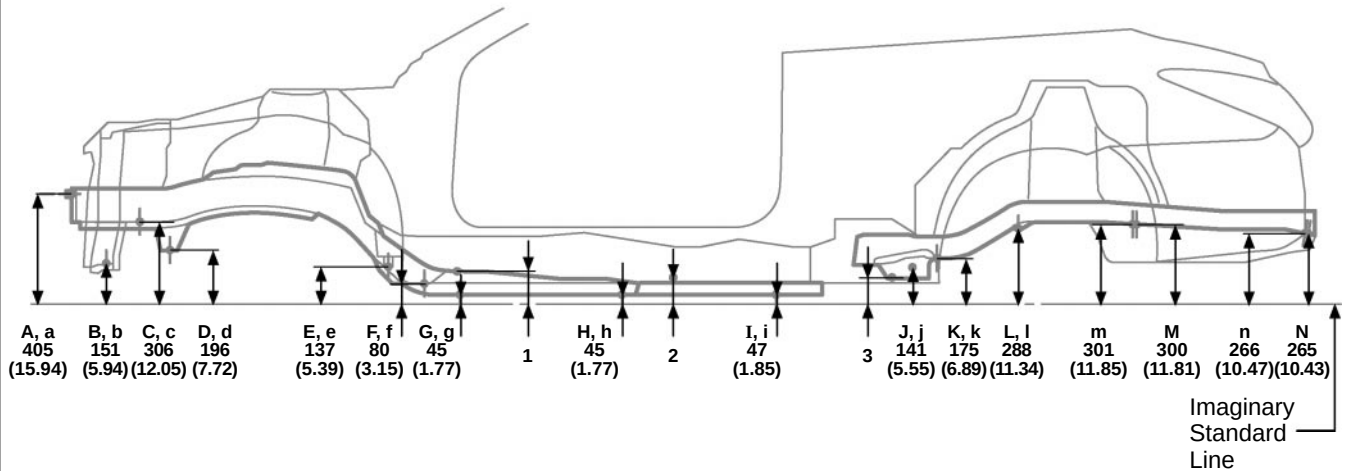
Vehicle Dimensions

C-g or c-G	E-g or e-G	E-G or e-g
1,526 (60.08)	843 (33.19)	309 (12.17)



Front ←

1	2	3
115 (4.53)	100 (3.94)	102 (4.02)

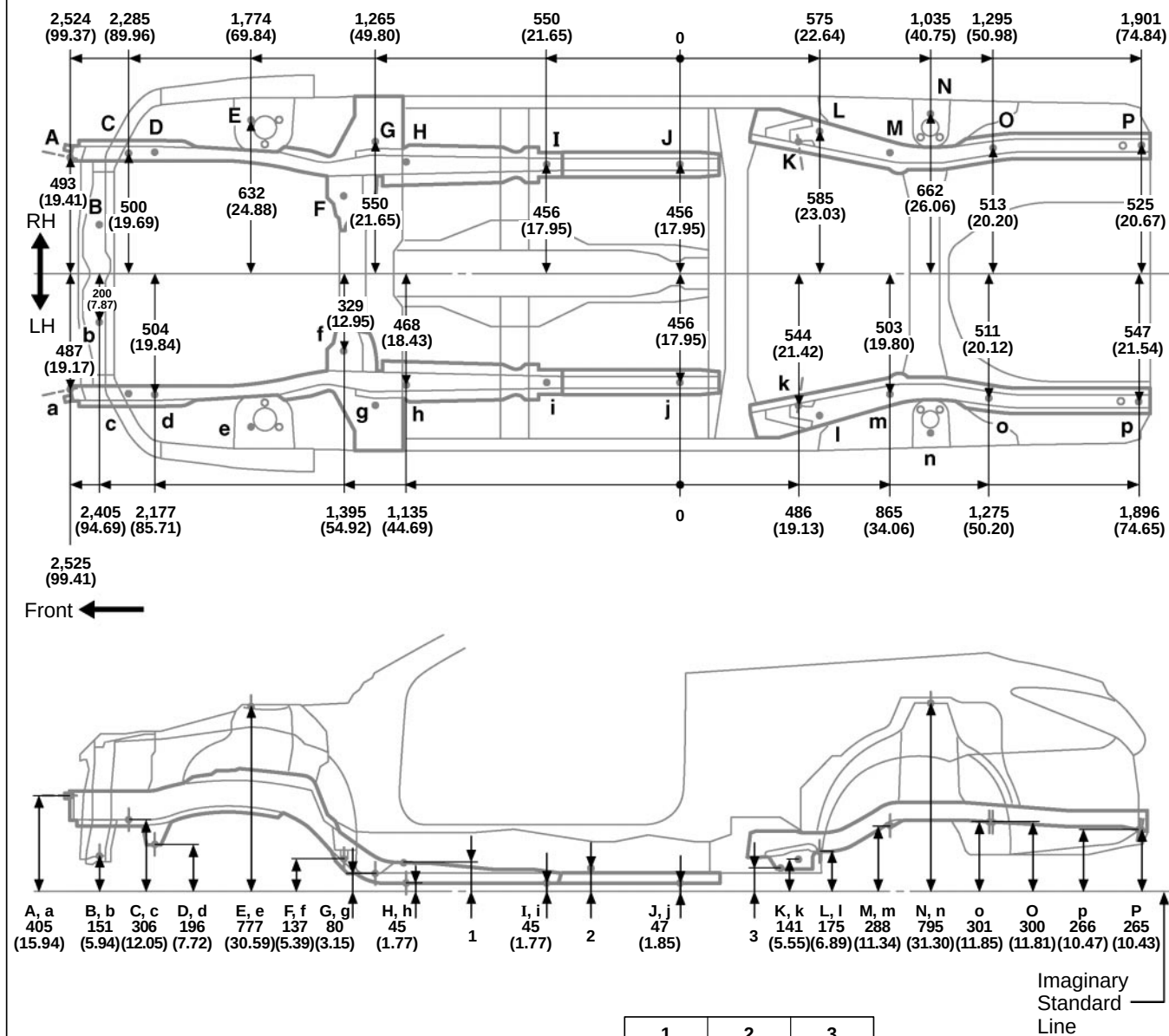


mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Front bumper reinforcement installation nut	10 (0.39) nut	H, h	Front side member standard hole	18 (0.71)
B, b	Front crossmember standard hole	15 (0.59)	I, i	Front floor under reinforcement standard hole	15 (0.59)
C, c	Front side member standard hole	18 (0.71)	J, j	Rear strut bar installation hole inner	12 (0.47)
D, d	Front frame installation nut	16 (0.63) nut	K, k	Rear floor side member standard hole	18 (0.71)
E, e	Front frame installation nut	16 (0.63) nut	L, l	Rear suspension member installation nut	12 (0.47) nut
F, f	Torque box front standard hole	25 (0.98)	M, m	Rear floor side member standard hole	18 (0.71)
G, g	Front side member standard hole	18 (0.71)	N, n	Transport hook installation nut	10 (0.39) nut

UNDER BODY

(Two-Dimensional Distance)



Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Front bumper reinforcement installation nut	10 (0.39) nut	I, i	Front side member standard hole	18 (0.71)
B, b	Front crossmember standard hole	15 (0.59)	J, j	Front floor under reinforcement standard hole	15 (0.59)
C, c	Front side member standard hole	18 (0.71)	K, k	Rear strut bar installation hole inner	12 (0.47)
D, d	Front frame installation nut	16 (0.63) nut	L, l	Rear floor side member standard hole	18 (0.71)
E, e	Front spring support hole outer	12.5 (0.492)	M, m	Rear suspension member installation nut	12 (0.47) nut
F, f	Front frame installation nut	16 (0.63) nut	N, n	Rear spring support hole outer	9.5 (0.374)
G, g	Torque box front standard hole	25 (0.98)	O, o	Rear floor side member standard hole	18 (0.71)
H, h	Front side member standard hole	18 (0.71)	P, p	Transport hook installation nut	10 (0.39) nut

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

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 CAMRY SOLARA.

Applicable models: ACV30 series
MCV31 series

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

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

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

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

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

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

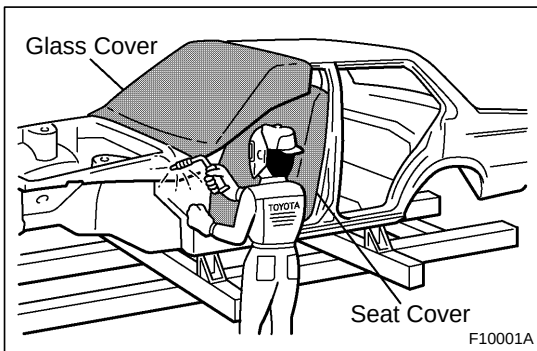
TOYOTA MOTOR CORPORATION

GENERAL REPAIR INSTRUCTIONS

1. WORK PRECAUTIONS

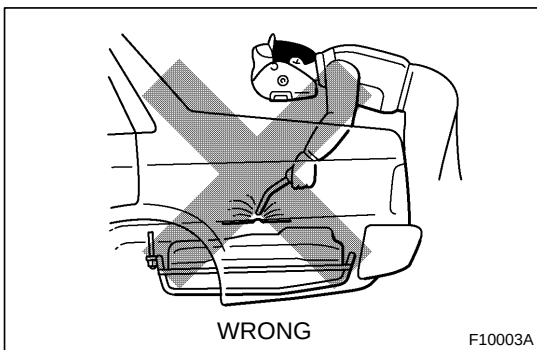
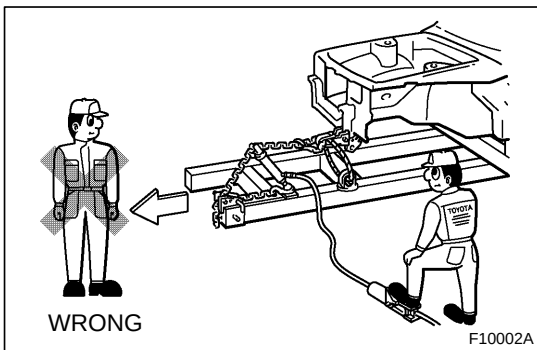
(a) VEHICLE PROTECTION

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



(b) SAFETY

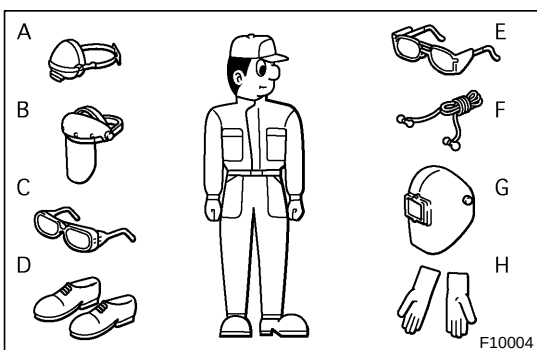
- (1) Never stand in direct line with the chain when using a puller on the body or frame, and be sure to attach a safety cable.



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

2. 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 property of the plastic.

Code	Material name	Heat* resistant temperature limit °C (°F)	Resistance to alcohol or gasoline	Notes
AAS	Acrylonitrile Acrylic 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.
ABS	Acrylonitrile Butadiene Styrene	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e.g., quick wiping to remove grease).	Avoid gasoline and organic or aromatic solvents.
AES	Acrylonitrile Ethylene Styrene	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e.g., quick wiping to remove grease).	Avoid gasoline and organic or aromatic solvents.
ASA	Acrylonitrile Styrene Acrylate	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e.g., quick wiping to remove grease).	Avoid gasoline and organic or aromatic solvents.
CAB	Cellulose Acetate	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e.g., quick wiping to remove grease).	Avoid gasoline and organic or aromatic solvents.
EPDM	Ethylene Propylene	100 (212)	Alcohol is harmless. Gasoline is harmless if applied only for short time in small amounts.	Most solvents are harmless but avoid dipping in gasoline, solvents, etc.
FRP	Fiber Reinforced Plastics	180 (356)	Alcohol and gasoline are harmless.	Avoid alkali.
EVA	Ethylene Acetate	70 (158)	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.

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

Code	Material name	Heat* resistant temperature limit °C (°F)	Resistance to alcohol or gasoline	Notes
PE	Polyethylene	80 (176)	Alcohol and gasoline are harmless.	Most solvents are harmless.
PET	Polyethylene Terephthalate	75 (167)	Alcohol and gasoline are harmless.	Avoid dipping in water.
PMMA	Polymethyl Methacrylate	80 (176)	Alcohol is harmless if applied only for short time in small amounts.	Avoid dipping or immersing in alcohol, gasoline, solvents, etc.
POM	Polyoxymethylene (Polyacetal)	100 (212)	Alcohol and gasoline are harmless.	Most solvents are harmless.
PP	Polypropylene	80 (176)	Alcohol and gasoline are harmless.	Most solvents are harmless.
PPO	Modified Polyphenylene Oxide	100 (212)	Alcohol is harmless.	Gasoline is harmless if applied only for quick wiping to remove grease.
PS	Polystyrene	60 (140)	Alcohol and gasoline are harmless if applied only for short time in small amounts.	Avoid dipping or immersing in alcohol, gasoline, solvents, etc.
PUR	Polyurethane	80 (176)	Alcohol is harmless if applied only for very short time in small amounts (e.g., quick wiping to remove grease).	Avoid dipping or immersing in alcohol, gasoline, solvents, etc.
PVC	Polyvinylchloride (Vinyl)	80 (176)	Alcohol and gasoline are harmless if applied only for short time in small amounts (e.g., quick wiping to remove grease).	Avoid dipping or immersing in alcohol, gasoline, solvents, etc.
SAN	Styrene Acrylonitrile	80 (176)	Alcohol is 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.
TPO	Thermoplastic Olefine	80 (176)	Alcohol is harmless. Gasoline is harmless if applied only for short time in small amounts.	Most solvents are harmless but avoid dipping in gasoline, solvents, etc.
TPU	Thermoplastic Polyurethane	80 (176)	Alcohol is 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.
UP	Unsaturated Polyester	110 (233)	Alcohol and gasoline are harmless.	Avoid alkali.

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

3. LOCATION OF PLASTIC BODY PARTS

Parts Name	Code
Front Bumper Cover	TSOP
Radiator Grille	ABS
Front License Plate Bracket	PP
Headlight	PC/PP
Fog Light	PC/PE
Hood Moulding	ABS
Outer Rear View Mirror	ABS
Door Outside Handle	PC/PBT
Rocker Panel Moulding	TPO
Rear Spoiler	ABS
Rear Combinarion Light	PMMA/ASA
License Plate Light	PC
Rear Bumper Cover	TSOP

HINT:

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

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 brake (32) section of the repair manual for the relevant model 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. Particularly accurate repair of the body must also be done 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 during alignment and section DI of this section.

Component to be aligned	Section of repair manual for relevant model
Front Wheels	Front Suspension (26) section
Rear Wheels	Rear Suspension (27) 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, memory of the clock and audio systems will be cancelled. 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 seat and outside rear view mirror, which are all equipped with memory function, it is not possible to make a record of the memory contents.

So 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.

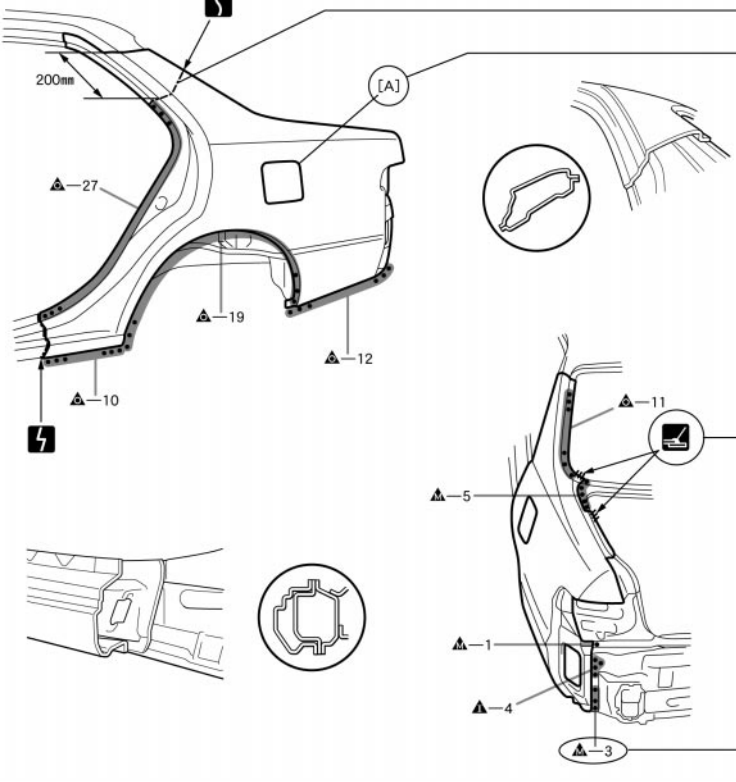
- Do not expose the ECUs to ambient temperatures above 80°C (176°F).

NOTICE: If it is possible 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.

HOW TO USE THIS MANUAL

1. BODY PANEL REPLACEMENT THIS MANUAL

BP-34		BODY PANEL REPLACEMENT	
(A)	QUARTER PANEL (CUT) REPLACEMENT		(C)
(B)	REMOVAL		
(D)			
(E)	POINT 1 Remove the [A] at the same time. PART NAME [A] Fuel Filler Opening Lid		

(A) : 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

(B) : REMOVAL CONDCTIONS

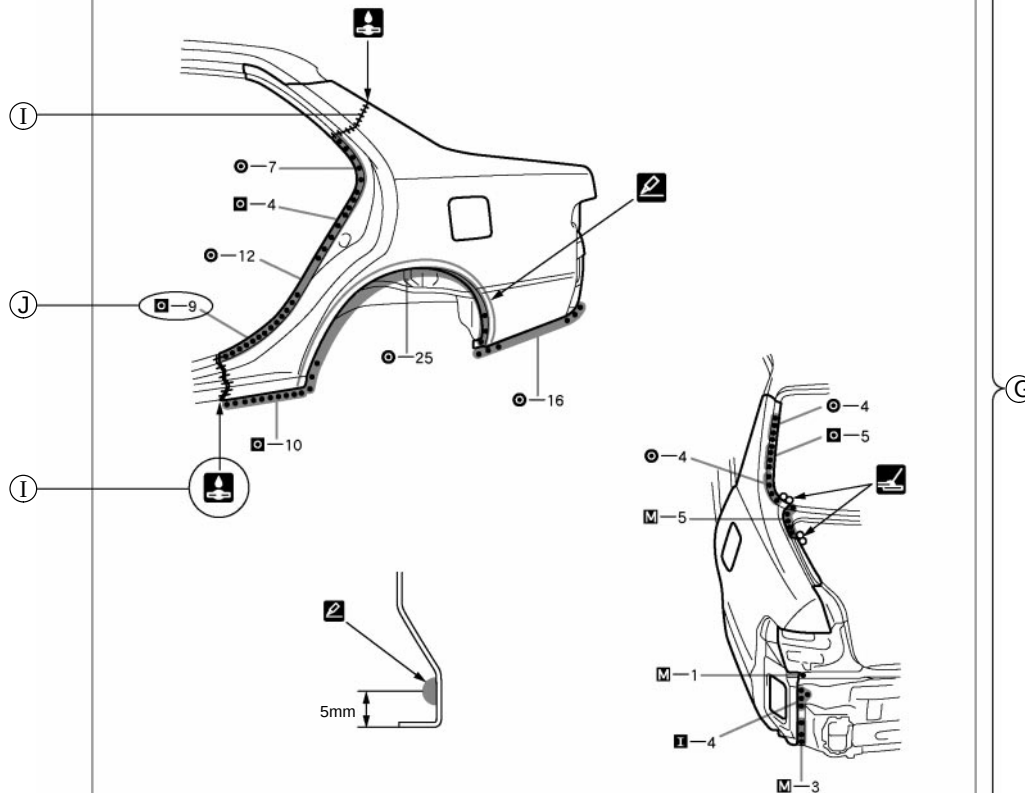
(C) : PART LOCATION

(D) : REMOVAL DIAGRAM
 Describes in detail removal of the damaged part involving repair by cutting.

(E) : REMOVAL GUIDE
 Provides additional information to more efficiently help you perform the removal.

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



POINT

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

HINT:

- 1) Apply body sealer about 5mm (0.20in.) front the flange, avoiding any oozing.
- 2) Apply sealer evenly, about 3 - 4mm (0.12 - 0.16in.) in diameter.
- 3) For other sealing points, refer to section PC.

PART NAME

[A] Fuel Filler Opening Lid

[B] Waterproof Rivet

(F) : INSTALLATION CONDITIONS

G : INSTALLATION DIAGRAM

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

Ⓜ : INSTALLATION GUIDE

Provides additional information to more efficiently help you perform the installation.

① : SYMBOLS

(See page IN-7)

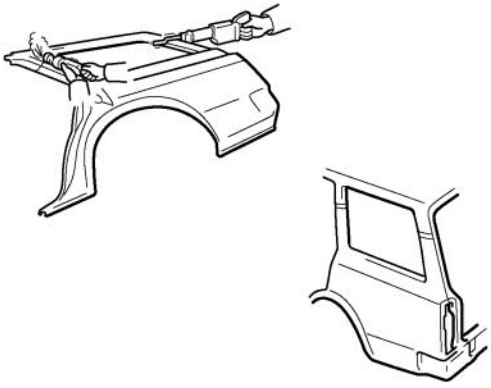
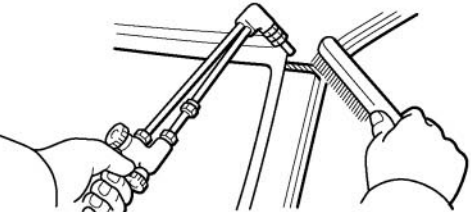
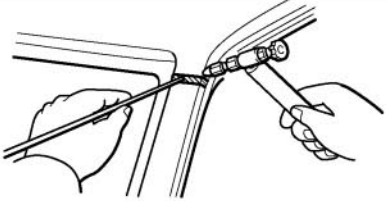
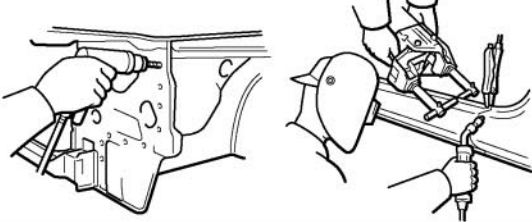
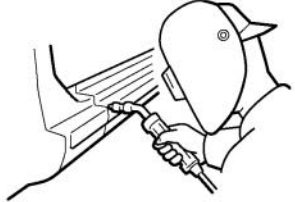
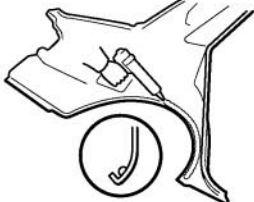
① J : ILLUSTRATION OF WELD POINTS

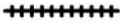
Weld method and panel position symbols (See page IN-9)

Ⓚ : PART NAME

2. SYMBOLS

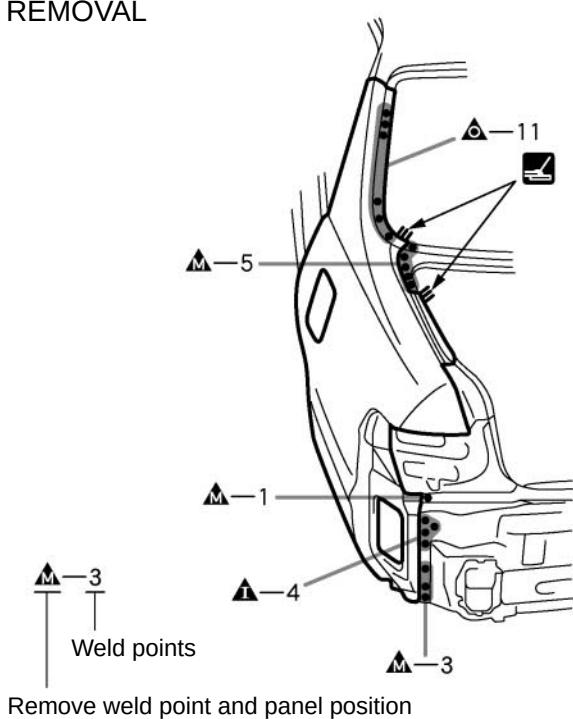
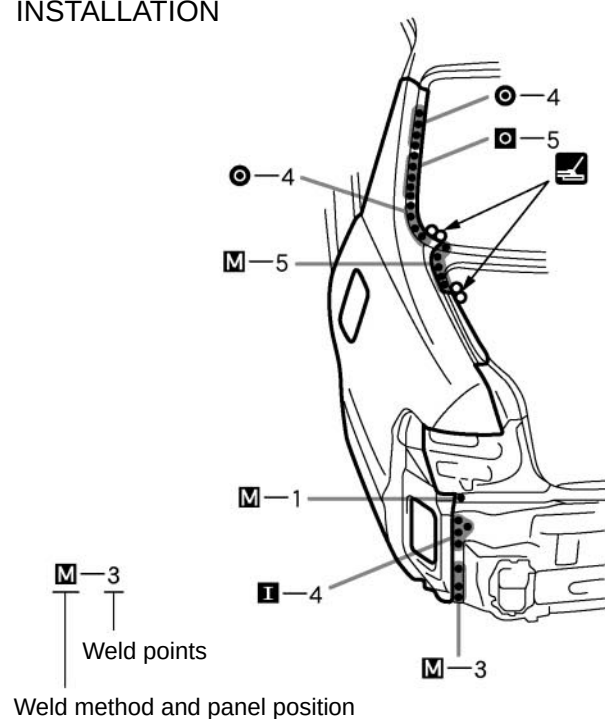
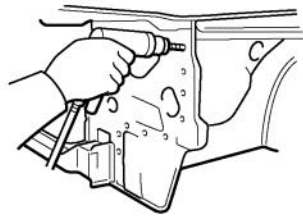
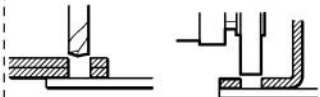
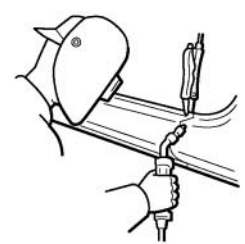
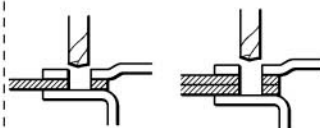
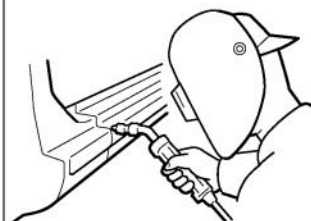
The following symbols are used in the welding diagrams in section BP of this manual to indicate cutting areas and the types of weld required.

SYMBOLS		MEANING	ILLUSTRATION
-----		CUT AND JOIN LOCATION (SAW CUT)	
		CUT AND JOIN LOCATION (Cut Location for Supply Parts)	
		CUT LOCATION	
		CUT WITH DISC SANDER, ETC.	
////		BRAZE (Removal)	
oooo		BRAZE (Installation)	
●●●●●	—	WELD POINTS	
        	—	SPOT WELD OR MIG PLUG WELD (See Page IN-9)	
++++		CONTINUOUS MIG WELD (BUTT WELD)	
		CONTINUOUS MIG WELD (TACK WELD)	
		BODY SEALER	

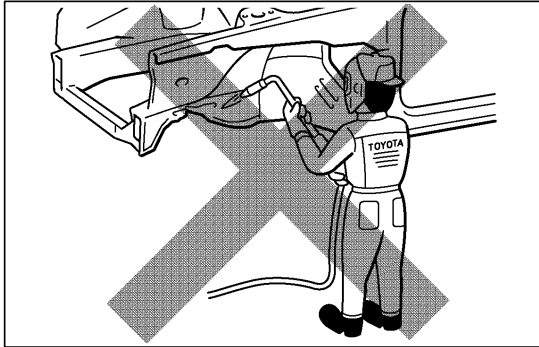
SYMBOLS		MEANING	ILLUSTRATION
—		Assembly Mark	—
	—	BODY SEALER (Flat Finishing)	
	—	BODY SEALER (No flat Finishing)	

3. ILLUSTRATION OF WELD POINT SYMBOLS

EXAMPLE:

REMOVAL			INSTALLATION		
 Remove weld point and panel position			 Weld method and panel position		
SYMBOLS	MEANING	ILLUSTRATION	SYMBOLS	MEANING	ILLUSTRATION
  	Remove Weld Points		  	Spot Weld	
	(Outside)		  	MIG Plug Weld	
	(Middle)			Spot MIG Weld	
	(Inside)				
<i>HINT: Panel position symbols are as seen from the working posture.</i>					

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 being sought after.

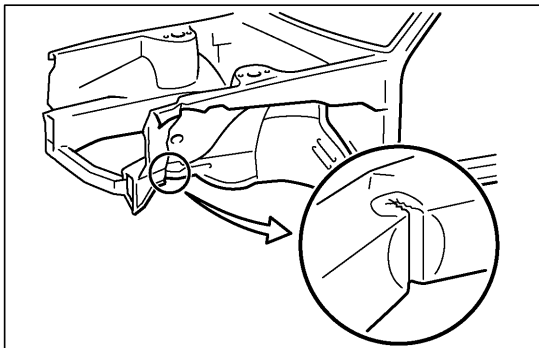
At Toyota, in order to fulfill these requirements, we use high tensile strength steel sheets and rust preventive steel sheets on the body.

High tensile steel sheets are made with alloy additives and a special heat treatment in order to improve the 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 a body structure part is heat repaired with an acetylene torch or other heating source, the crystalline organization of the steel sheet will change and the 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.

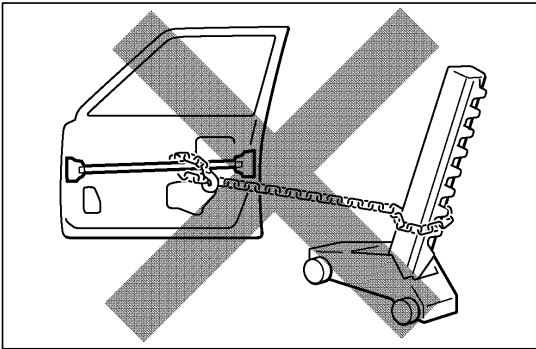
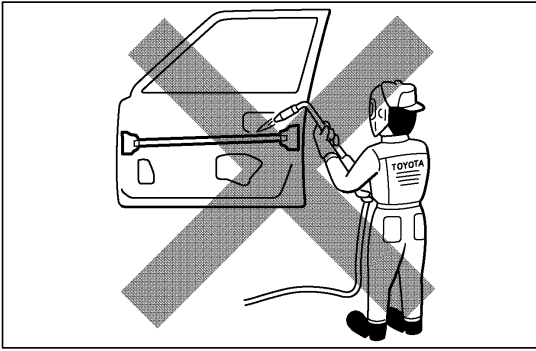


2. STRUCTURE PANEL KINKS

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

Since structure parts were designed to exhibit a 100% performance when they were in their original shape, if they are deformed in an accident, or if the deformed parts are repaired and reused, they become unable to exhibit the same performance as intended in the design.

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



3. IMPACT BEAM REPAIR

The impact beam and bracket are necessary and important parts in maintaining a survival space for passengers in a side collision.

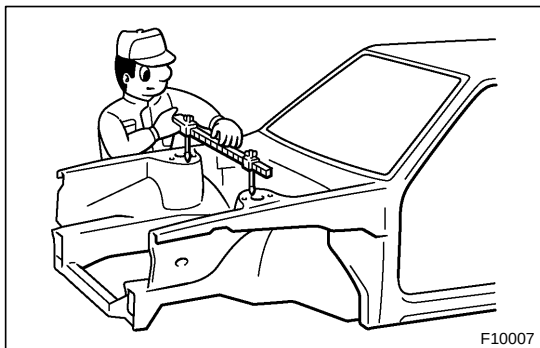
For impact beam, we use special high tensile strength steel.

The high tensile strength steel maintains its special crystal-line organization by heat treatment or alloy additives.

Since these parts were designed to exhibit a 100% performance when they were in their original shape, if they are deformed in an accident, or if the deformed parts are repaired and reused, they become unable to exhibit the same performance as intended in the design.

It is necessary to replace the door assembly when impact beam or bracket is damaged.

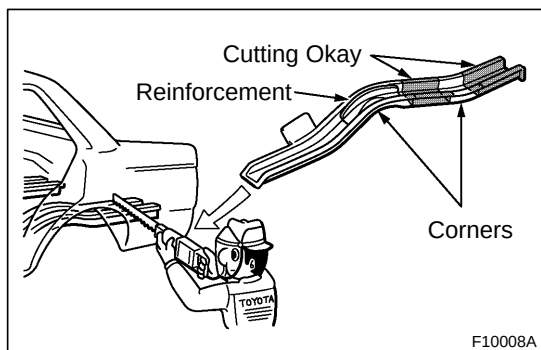
PROPER AND EFFICIENT WORK PROCEDURES



1. REMOVAL

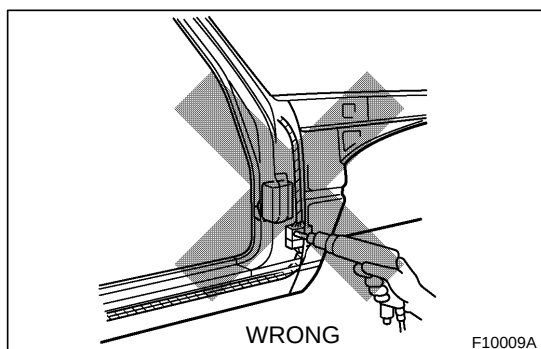
(a) PRE-REMOVAL MEASURING

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



(b) CUTTING AREA

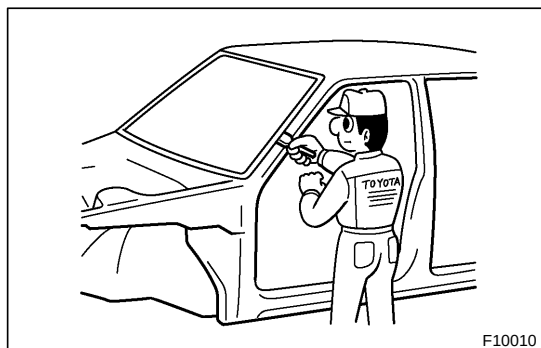
- (1) Always cut in a straight line and avoid reinforced area.



(c) PRECAUTIONS FOR DRILLING OR CUTTING

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

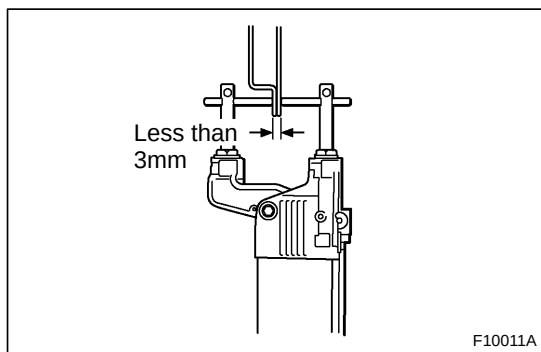
HINT: See "Handling Precautions on Related Components" on page IN-15.



(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-15.

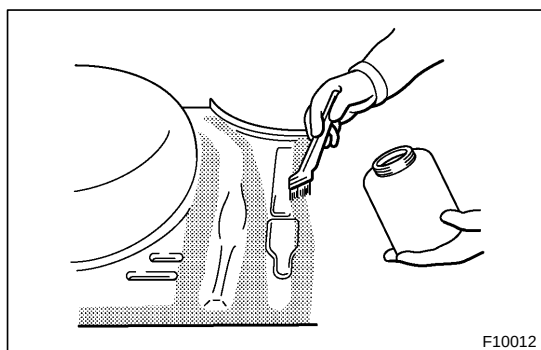


2. PREPARATION FOR INSTALLATION

(a) SPOT WELD POINTS

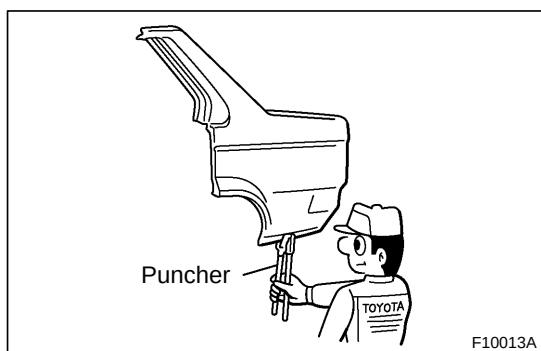
- (1) When welding panels with a combined thickness of over 3mm (0.12in.), use a MIG (Metal Inert Gas) welder for plug welding.

HINT: Spot welding will not provide sufficient durability for panels over 3mm (0.12in.) thick.



(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.



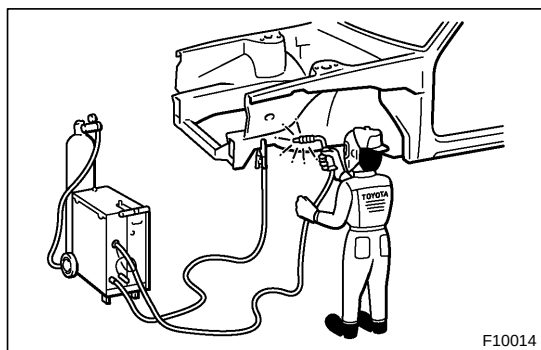
(c) MAKING HOLES FOR PLUG WELDING

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

REFERENCE:

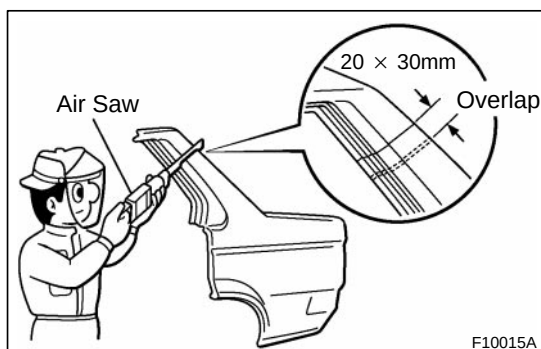
mm (in.)

Thickness of welded portion	Size of plug hole
1.0 (0.04) under	5 (0.20) ϕ over
1.0 (0.04) - 1.5 (0.06)	6.4 (0.25) ϕ over
1.5 (0.06) over	8 (0.31) ϕ over



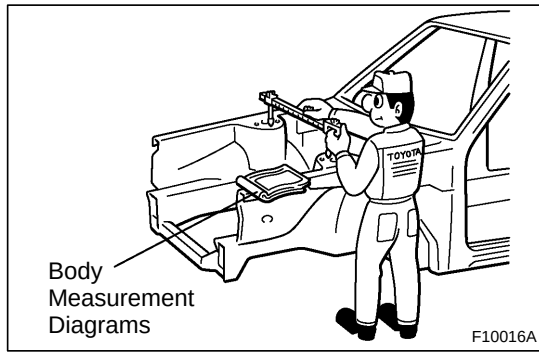
(d) SAFETY PRECAUTIONS FOR ELECTRICAL COMPONENTS

- (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

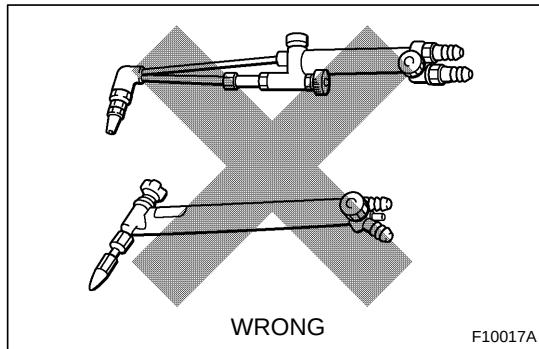
- (1) For joint areas, rough cut the new parts, leaving 20 - 30mm (0.79 - 1.18in.) overlap.



3. INSTALLATION

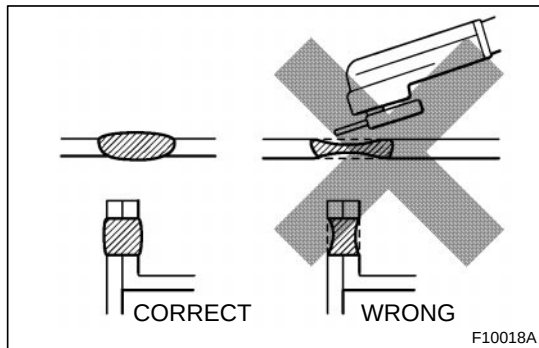
(a) PRE-WELDING MEASUREMENTS

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



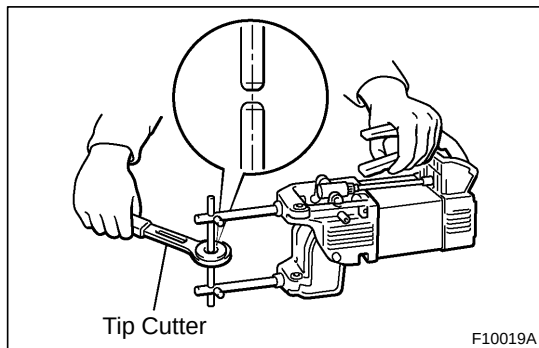
(b) WELDING PRECAUTIONS

- (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 specified.



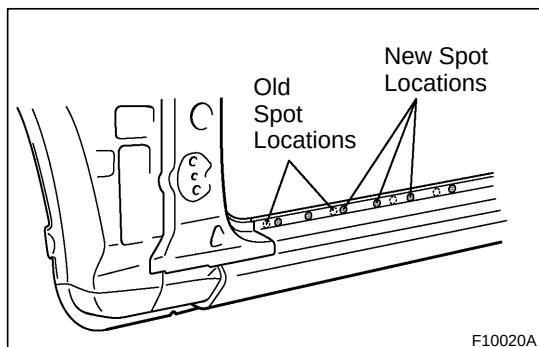
(c) POST-WELDING REFINISHING

- (1) Always check the welded spots to insure they are secure.
- (2) When smoothing out the weld spots with a disc grinder, be careful not to grind off too much as this would weaken the weld.



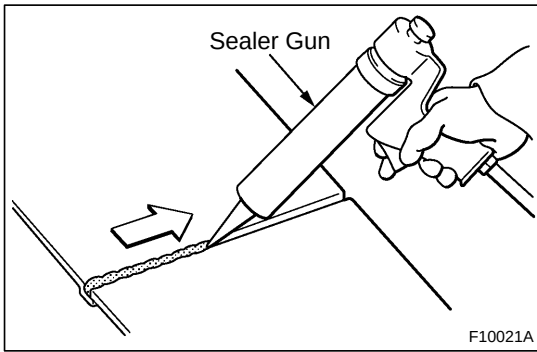
(d) SPOT WELD LOCATIONS

- (1) Try to avoid welding over previous spots.



(e) SPOT WELDING PRECAUTIONS

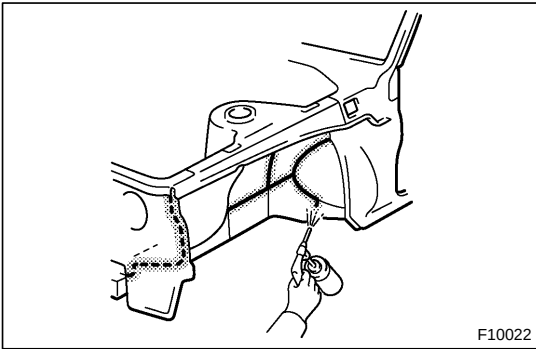
- (1) The shape of the welding tip point has an effect on the strength of the weld.
- (2) Always insure that the seams and welding tip are free of paint.



4. ANTI-RUST TREATMENT

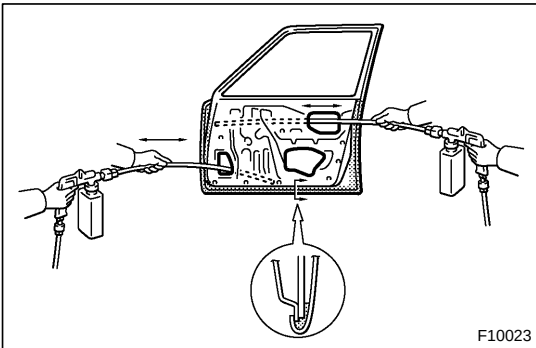
(a) BODY SEALER APPLICATION

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



(b) UNDERCOAT APPLICATION

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



5. ANTI-RUST TREATMENT 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 hoods, and around the hinges, or the welded surfaces inside the boxed cross-section structure of the side member, body pillar, etc.

6. ANTI-RUST TREATMENT BY PAINTING

REFERENCE:

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

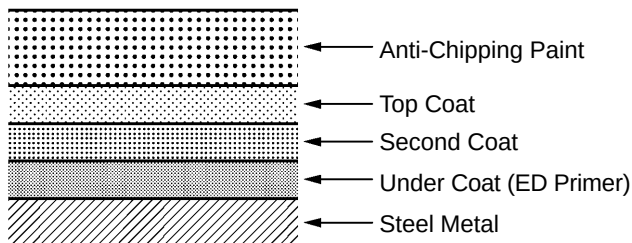
(a) ANTI-CHIPPING PAINT

- (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.

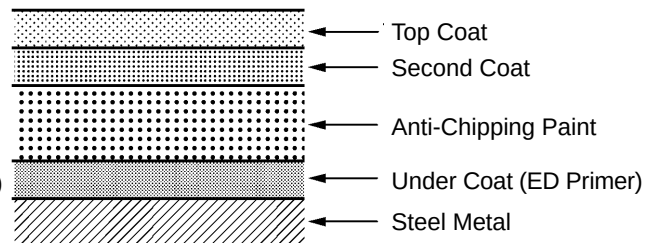
HINT:

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.

- Apply the anti-chipping paint after the top coat.



- Apply the anti-chipping paint before the second coat.



F10024A

VIEWS OF THIS TEXT

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.

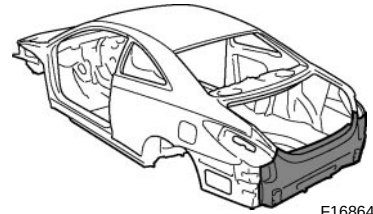
Section categories

- Each section has been divided as shown below.

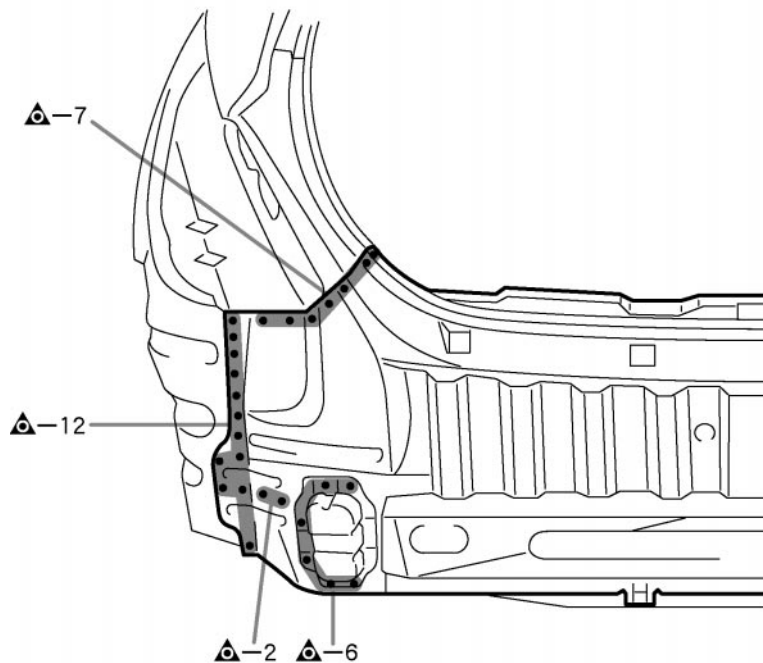
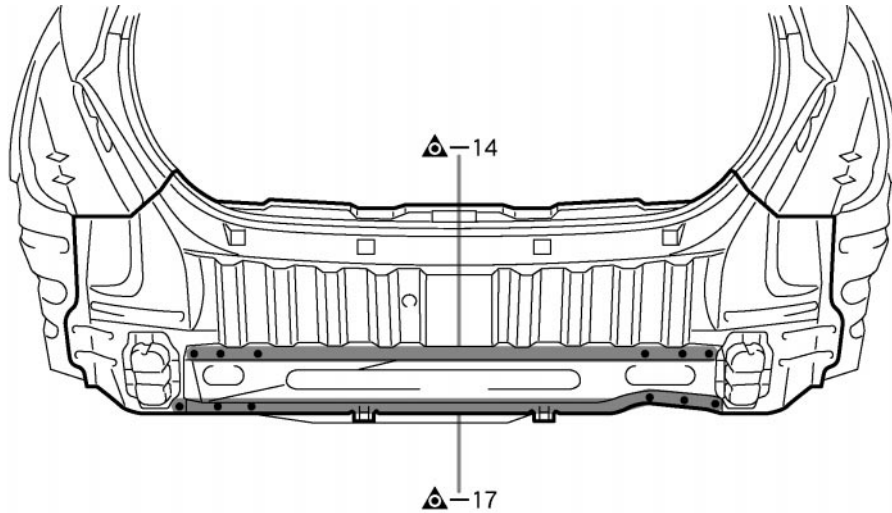
Section Title	Contents	Examples
INTRODUCTION	Explanation of general body repair. Views of weld panel replacement instructions.	Cautionary items. Views of weld panel replacement instructions.
BODY PANEL REPLACEMENT	Instructions for replacing the weld panels from the white body condition, from which bolted 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 coat. Body sealer.

Abbreviation of contents in this text.

- The following essential procedures have been abbreviated. When actually working, conduct this work properly.
 - (1) Jack and lift operations.
 - (2) Clean and wash removed parts, if necessary.
 - (3) Visual inspection.

BODY LOWER BACK PANEL (ASSY)**REPLACEMENT**

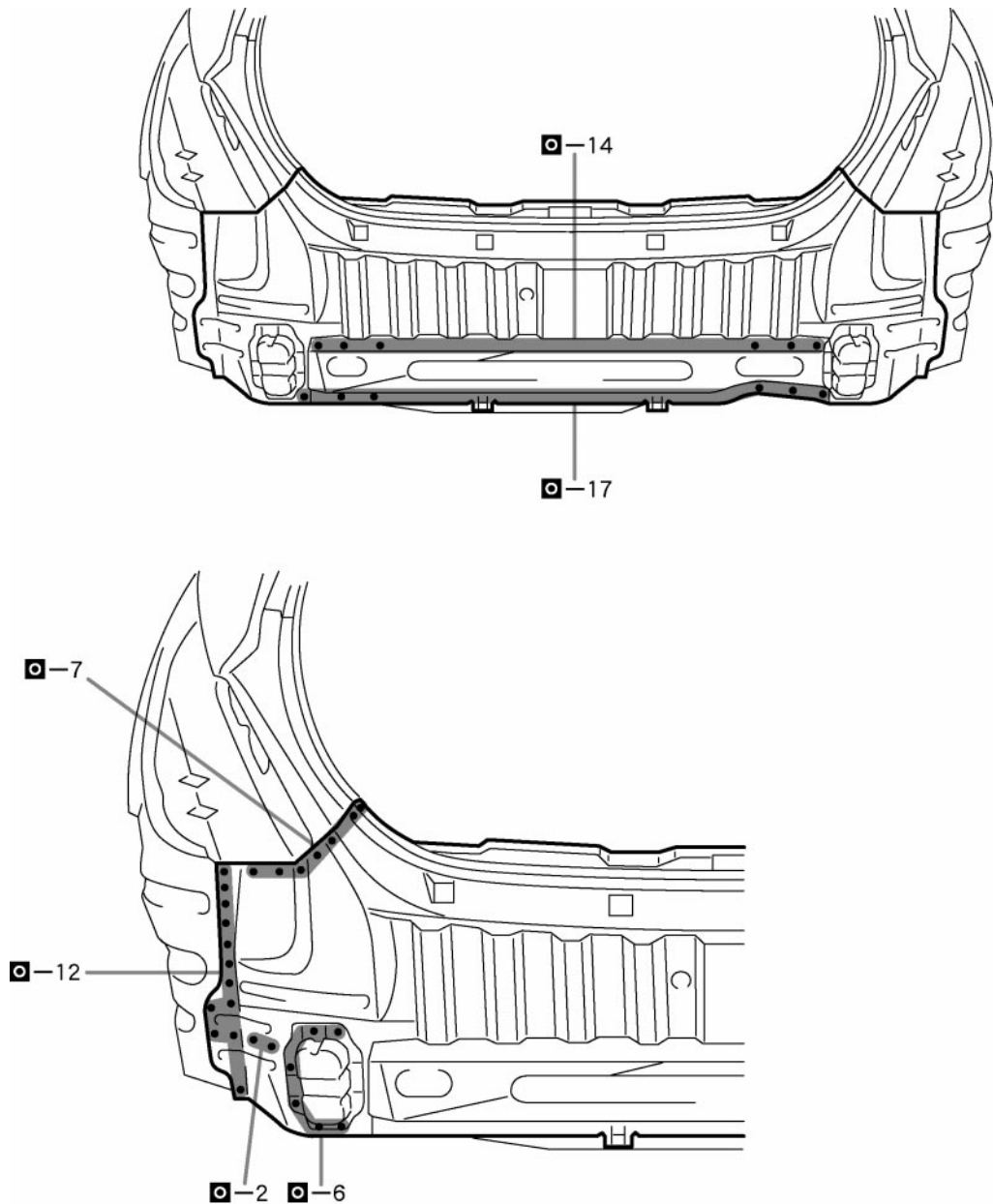
F16864A

REMOVAL

F16864

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F16865

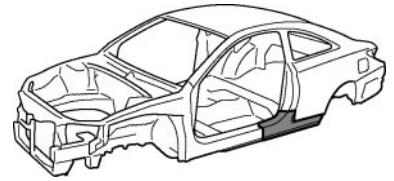
POINT

- 1 Inspect the fitting of the luggage compartment door and rear combination light, etc., before welding, since this affects the appearance of the finish.

CENTER BODY PILLAR LOWER REINFORCE (CUT-H)

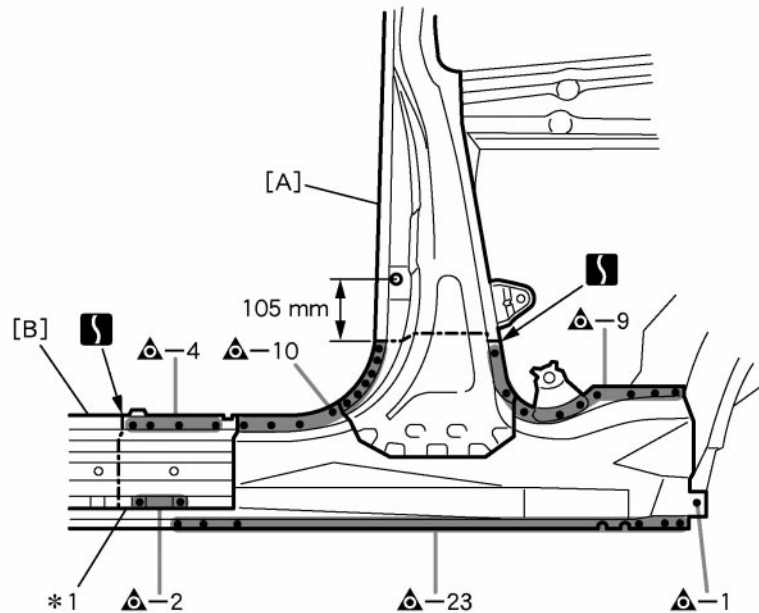
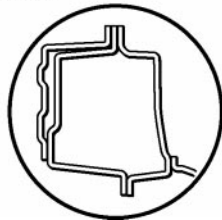
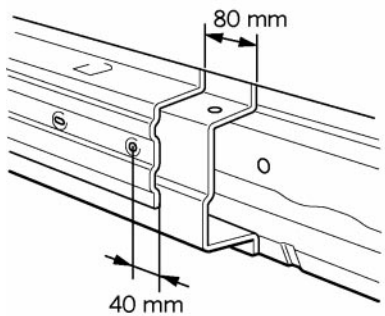
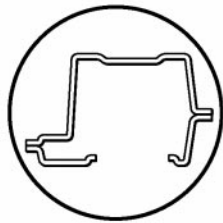
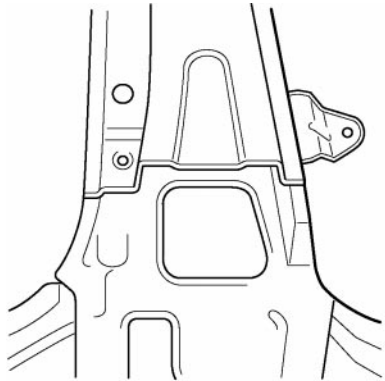
REPLACEMENT

With the quarter panel removed.



F16850A

REMOVAL



F16850

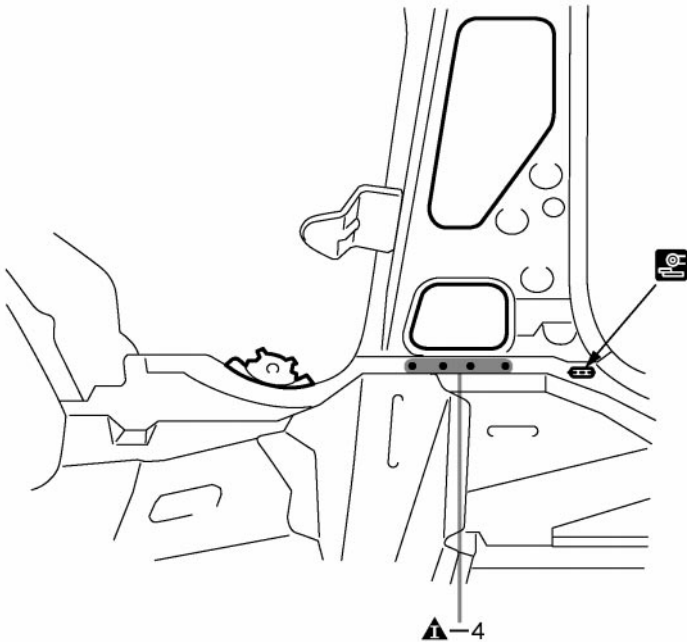
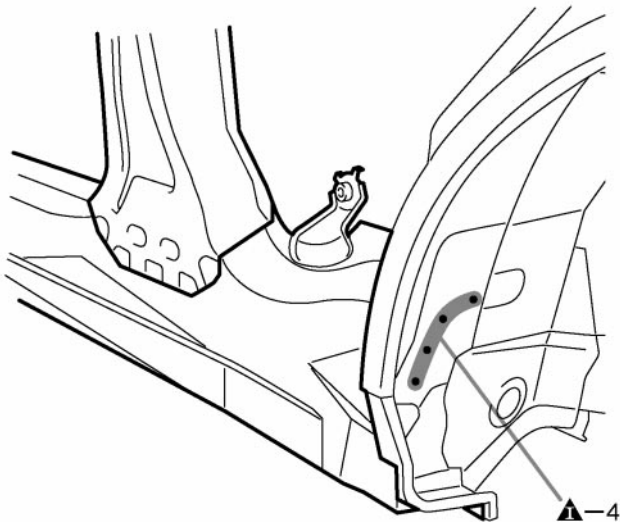
POINT

1 *1: Reuse

PART NAME

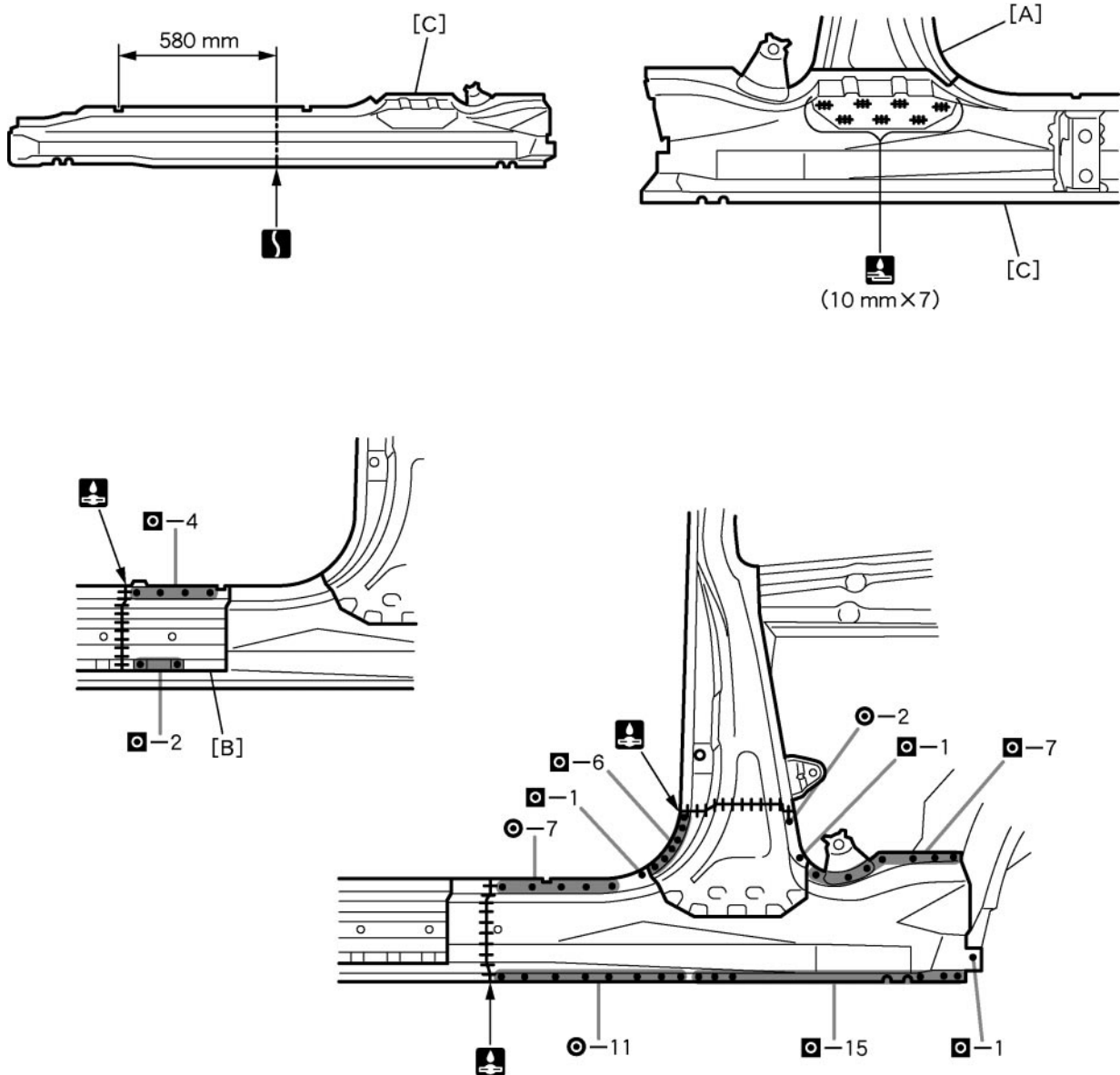
[A] Center Body Pillar Upper Reinforce
40mm (1.57 in.) 80 mm (3.15 in.)

[B] Rocker Outer Panel
105 mm (4.13 in.)



INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



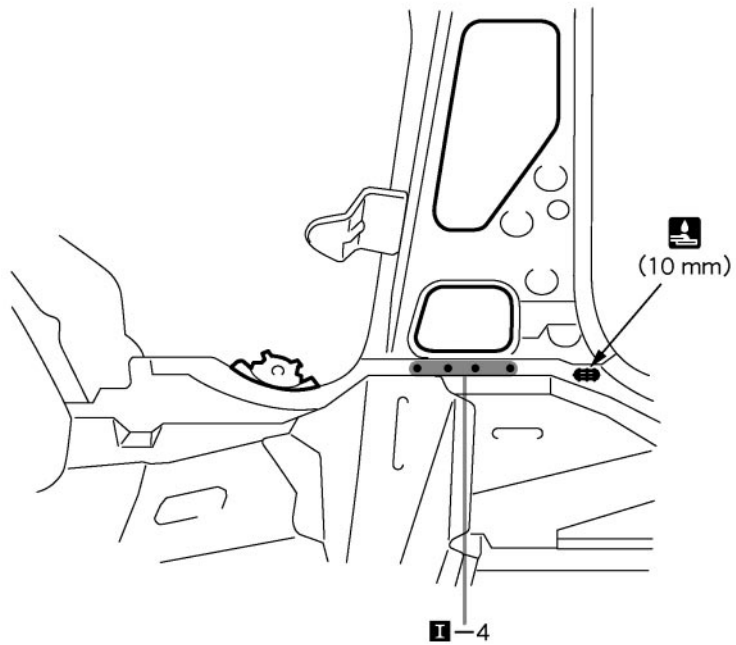
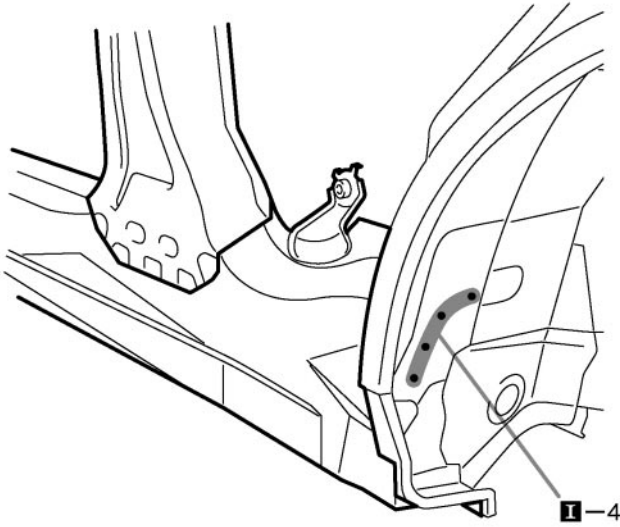
F16852

POINT

- 1 Before temporarily installing the new parts, weld the [A] and [C] with standard points.

PART NAME

- [A] Center Body Pillar Upper Reinforce [B] Rocker Outer Panel
 [C] Center Body Pillar Lower Reinforce
 10 mm (0.39 in.) 580 mm (22.83 in.)

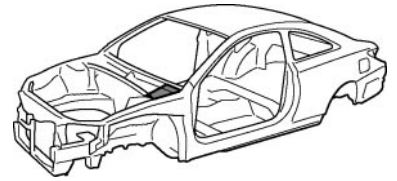


F16853

10 mm (0.39 in.)

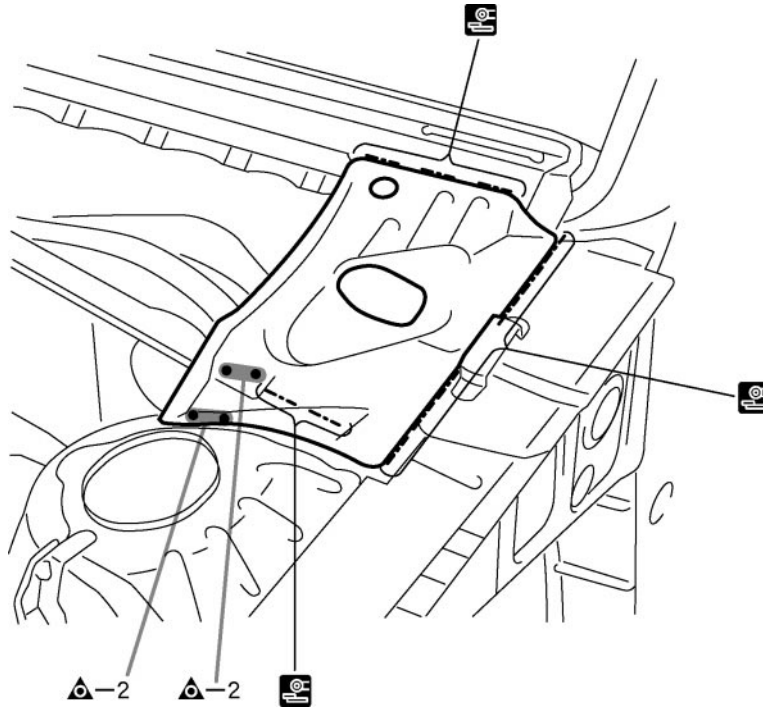
COWL TOP SIDE REINFORCEMENT (ASSY)

REPLACEMENT



F16838A

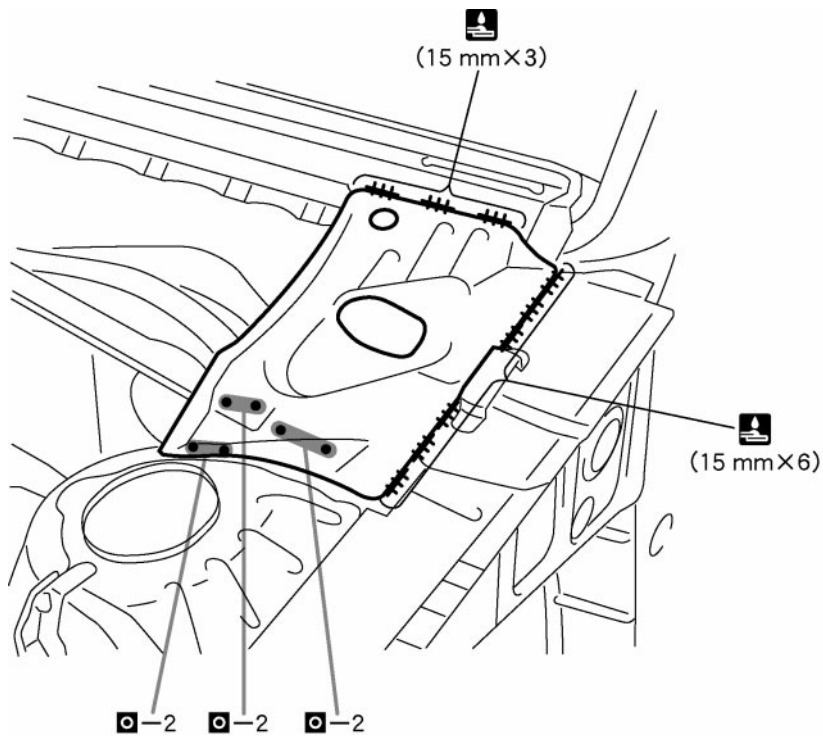
REMOVAL



F16838

INSTALLATION

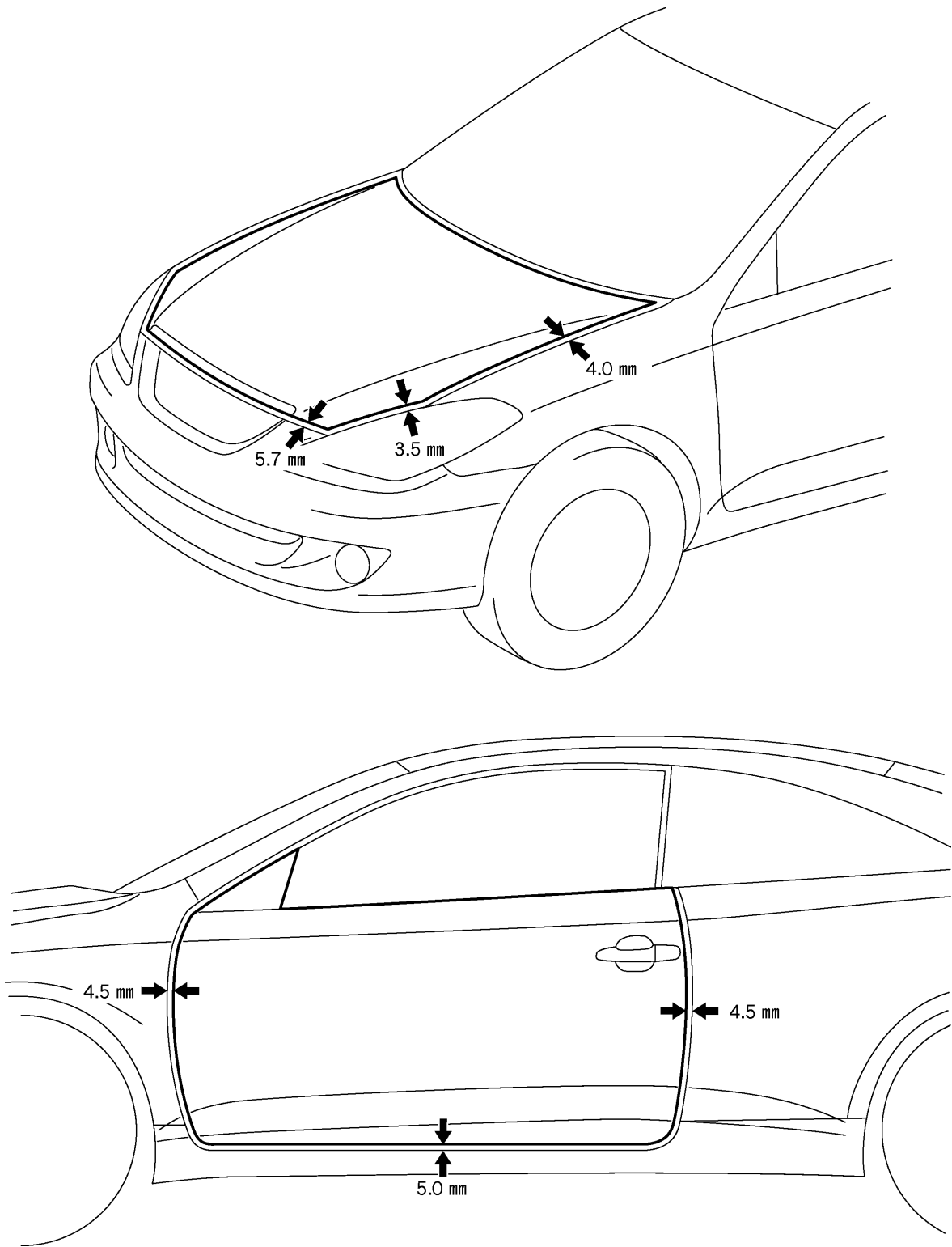
- Temporarily install the new parts and measure each part of the new parts in accordance with the body dimension diagram. (See the body dimension diagram)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F16839

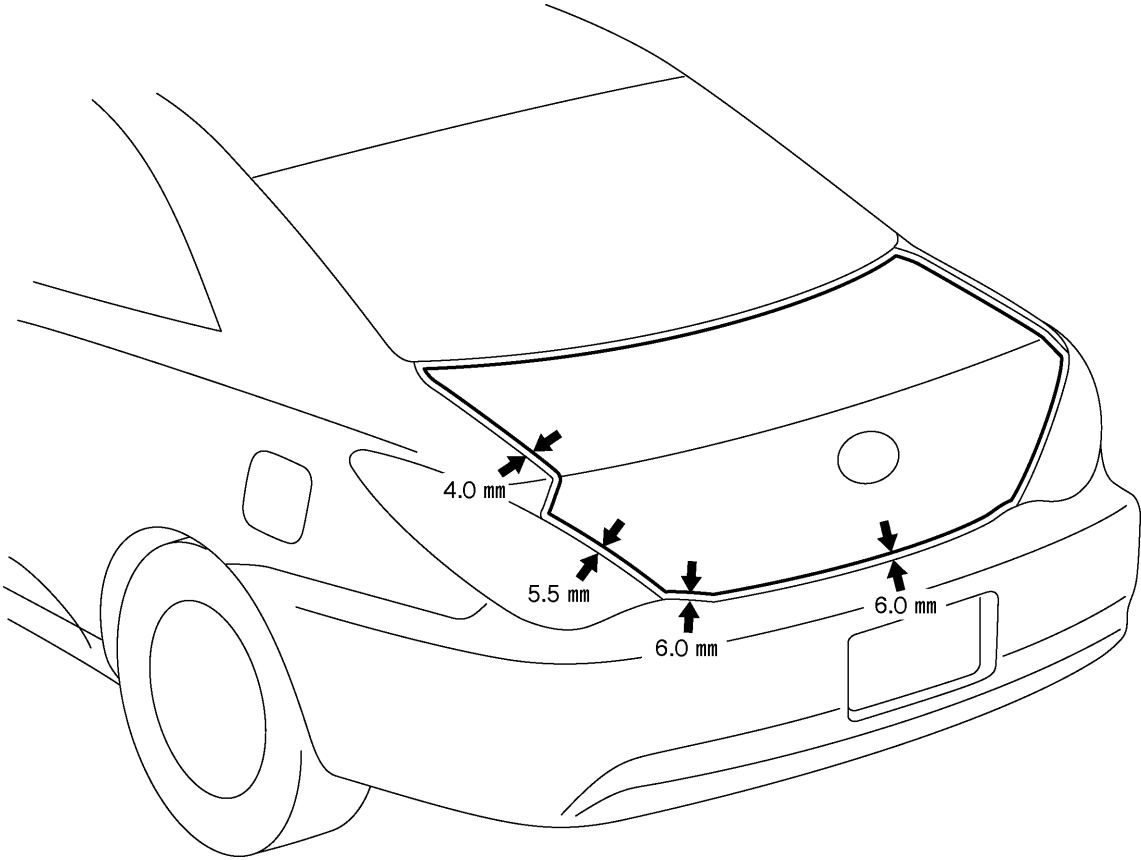
15 mm (0.59 in.)

FIT STANDARDS



F16813

3.5 mm (0.138 in.)	4.0 mm (0.157 in.)	4.5 mm (0.177 in.)
5.0 mm (0.197 in.)	5.7 mm (0.224 in.)	—



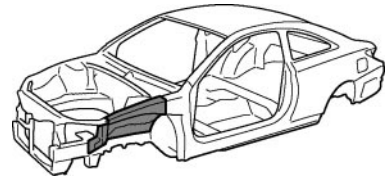
F16814

4.0 mm (0.157 in.)	5.5 mm (0.217 in.)	6.0 mm (0.236 in.)
--------------------	--------------------	--------------------

FRONT FENDER APRON (ASSY)

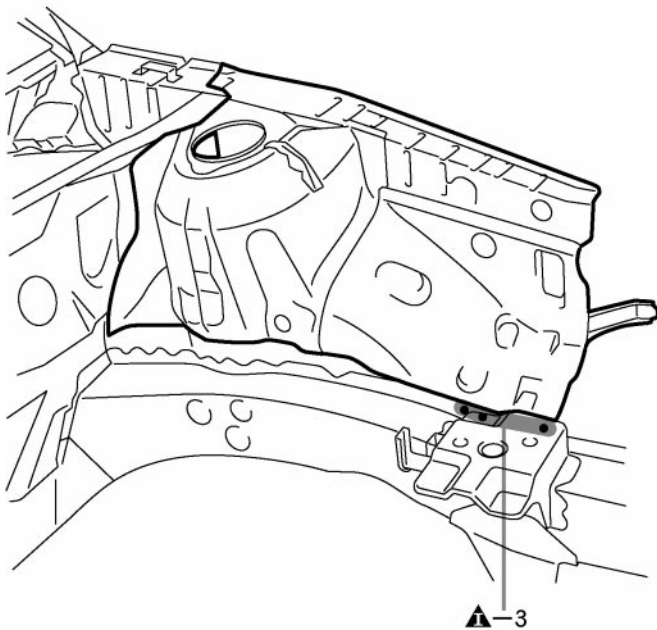
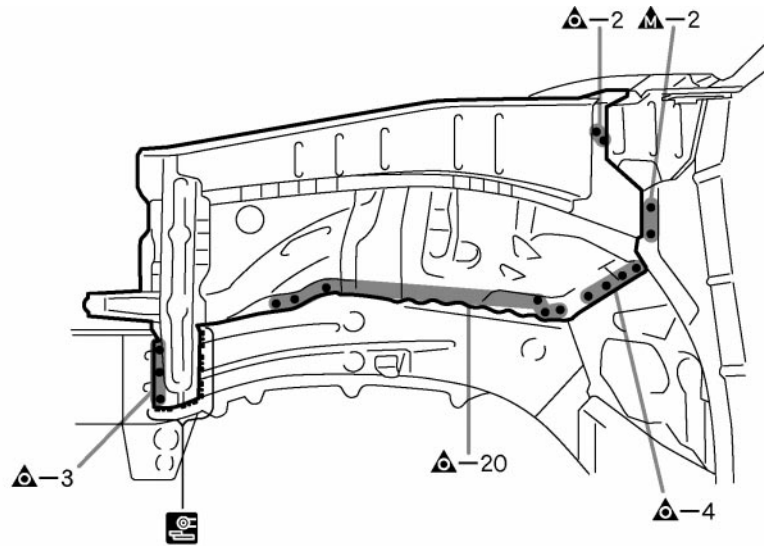
REPLACEMENT

With the radiator upper support and front body pillar lower gusset removed.



F16831A

REMOVAL

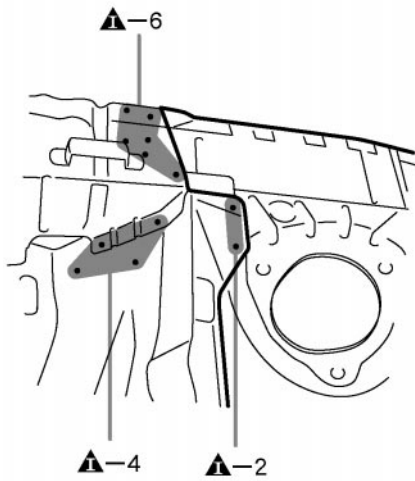


F16831

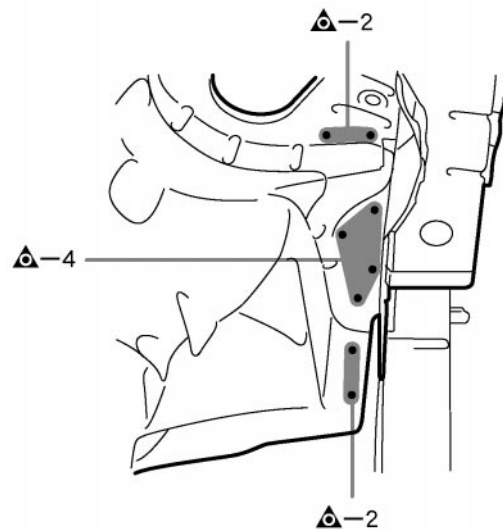
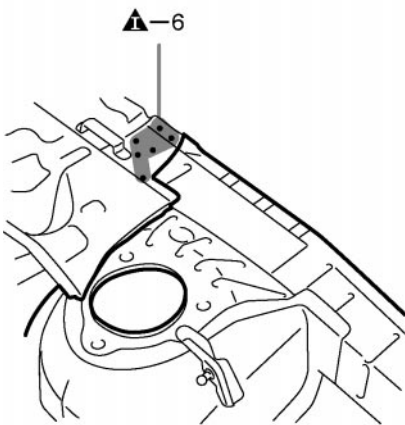
POINT

- 1 Two ways of working procedures; when removing and when not removing the cowl top side reinforcement, are described.

[When removing the cowl top side reinforcement]

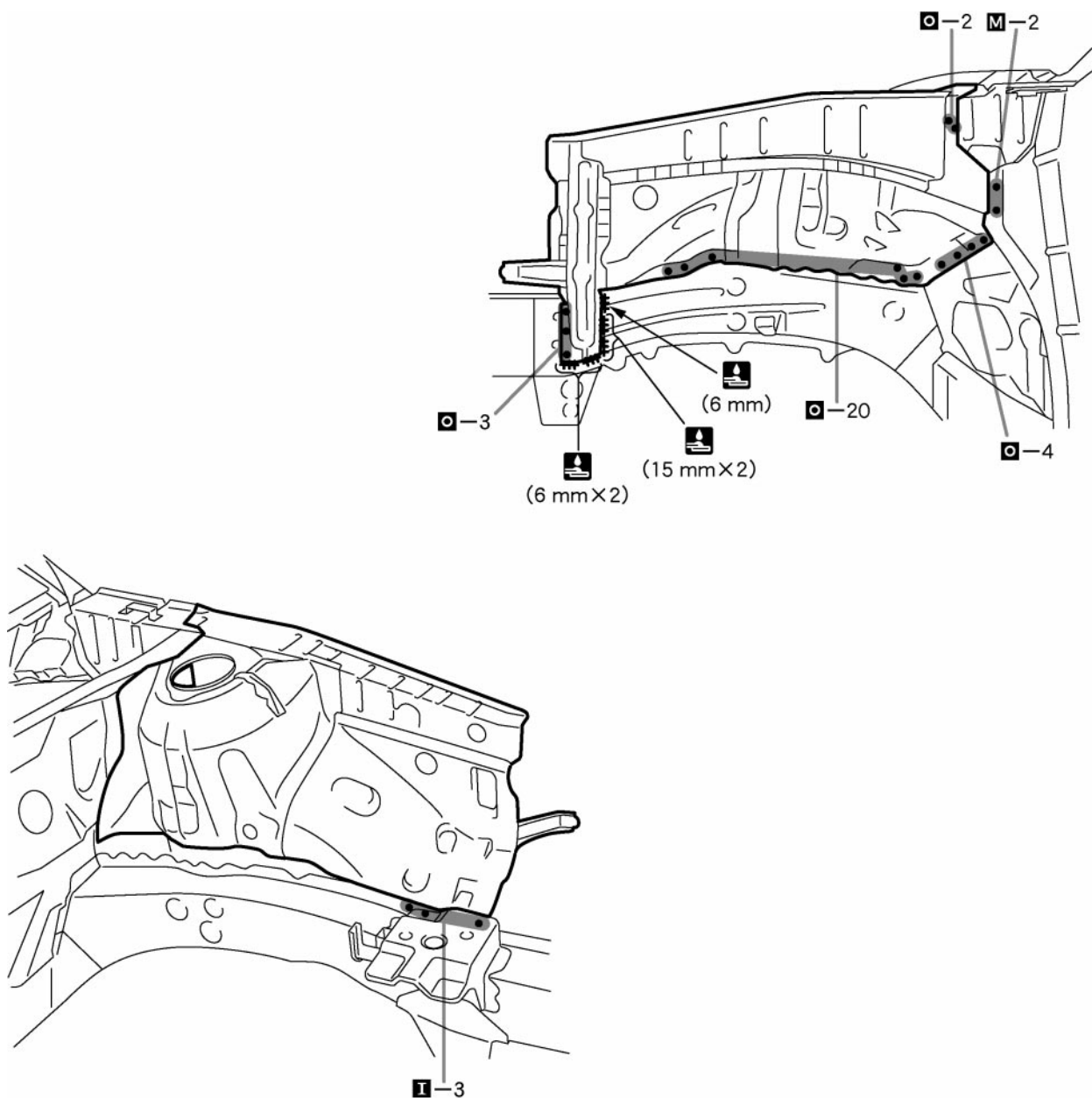


[When not removing the cowl top side reinforcement]



INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



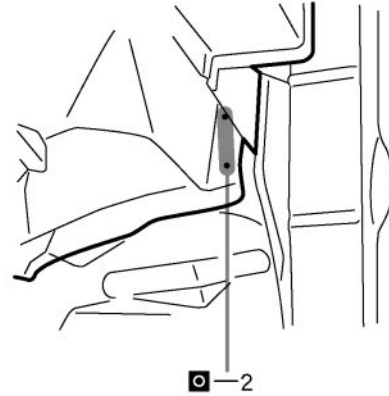
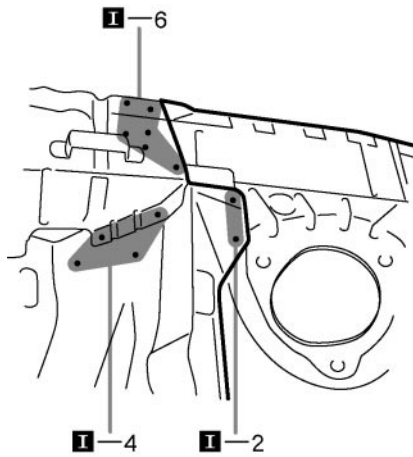
F16832

POINT

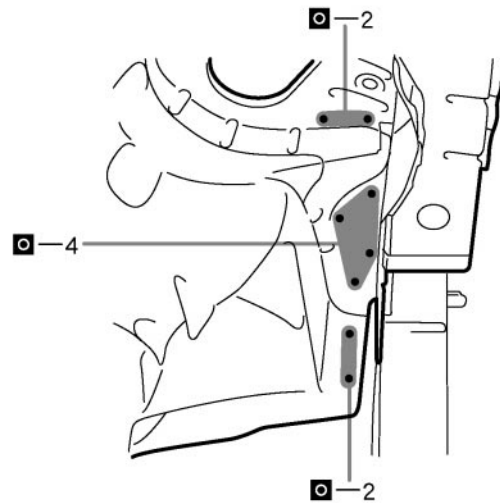
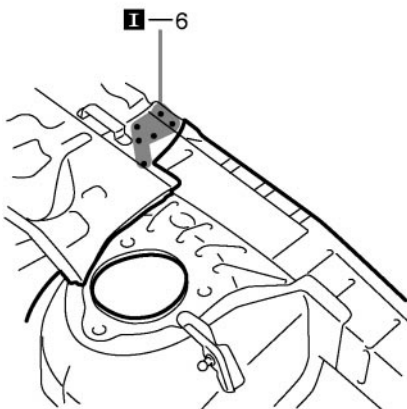
- 1 Inspect the fitting of the front fender and hood, etc., before welding, since this affects the appearance of the finish.
- 2 Make sure each measurement is correct, as this part affects the front wheel alignment.

6 mm (0.24 in.) 15 mm (0.59 in.)

[When removing the cowl top side reinforcement]



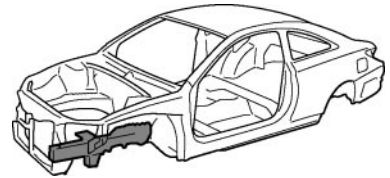
[When not removing the cowl top side reinforcement]



FRONT SIDEMEMBER (CUT-H)

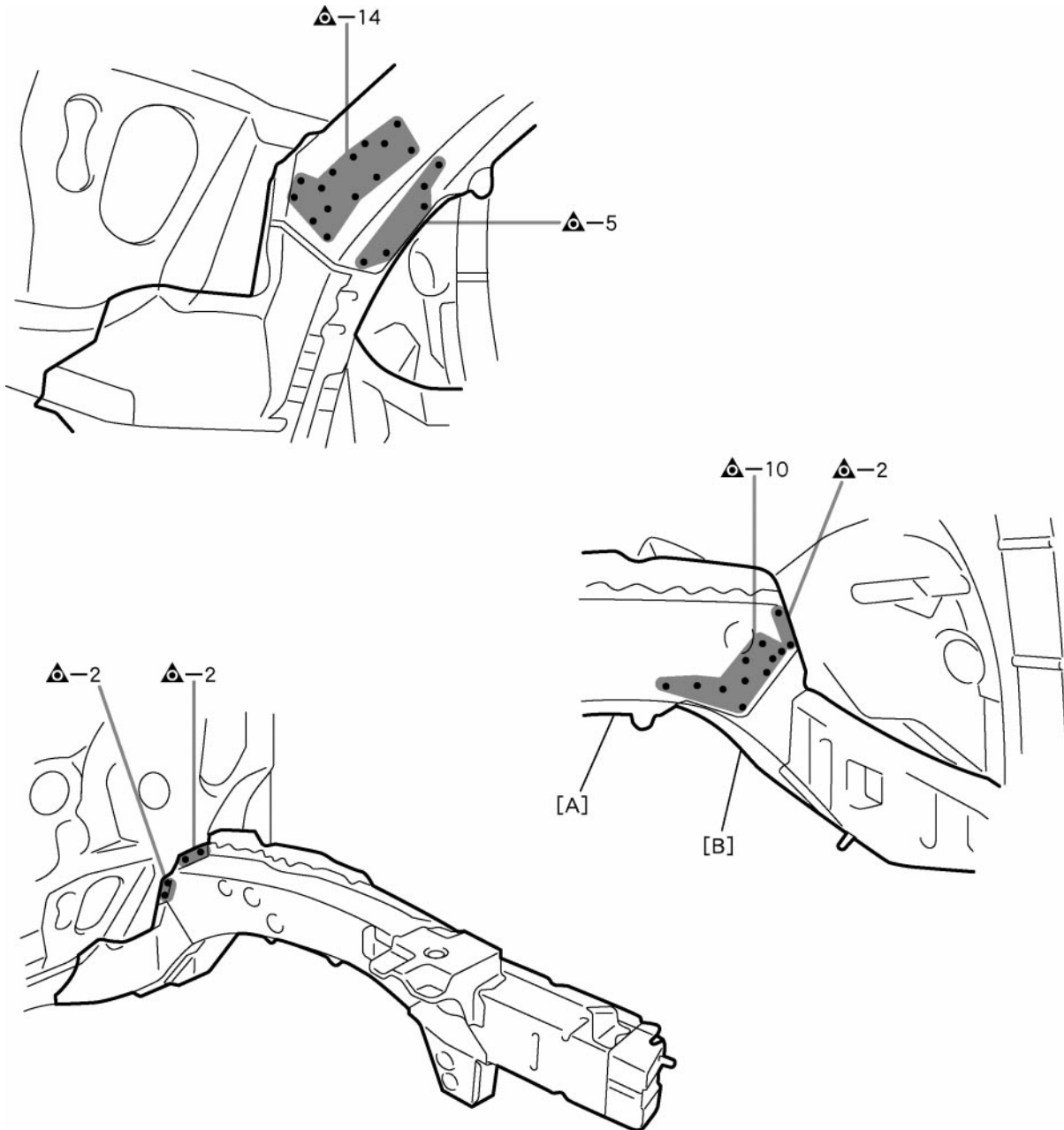
REPLACEMENT

With the radiator support upper brace, radiator side support, front crossmember and front fender apron removed.



F16835A

REMOVAL



F17014

POINT

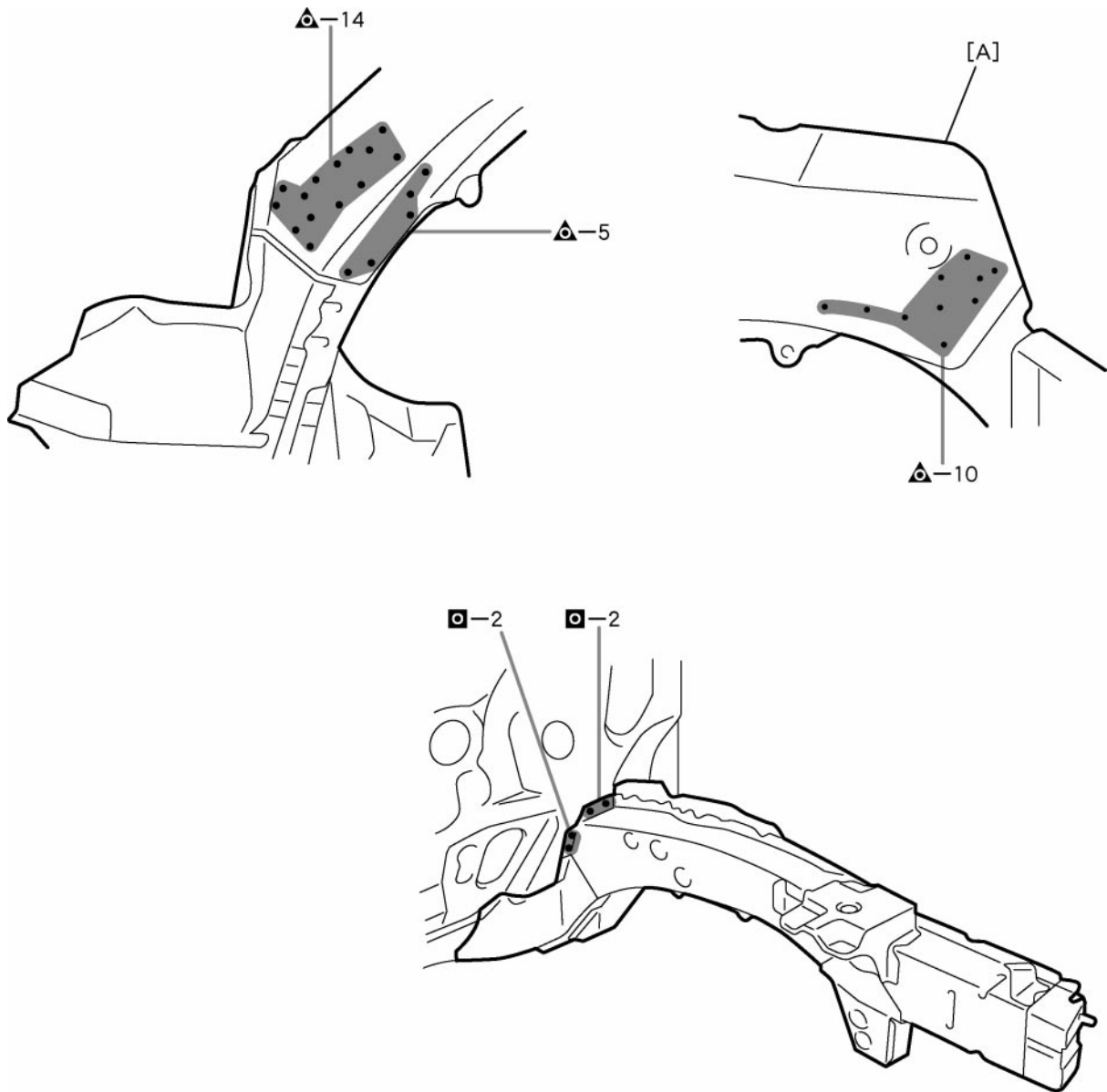
1 Separate the front sidemember, [A] and [B] at the welded part, and remove the front sidemember.

PART NAME

[A] Front Sidemember Outer Plate [B] Front Side Inner Rear Member

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



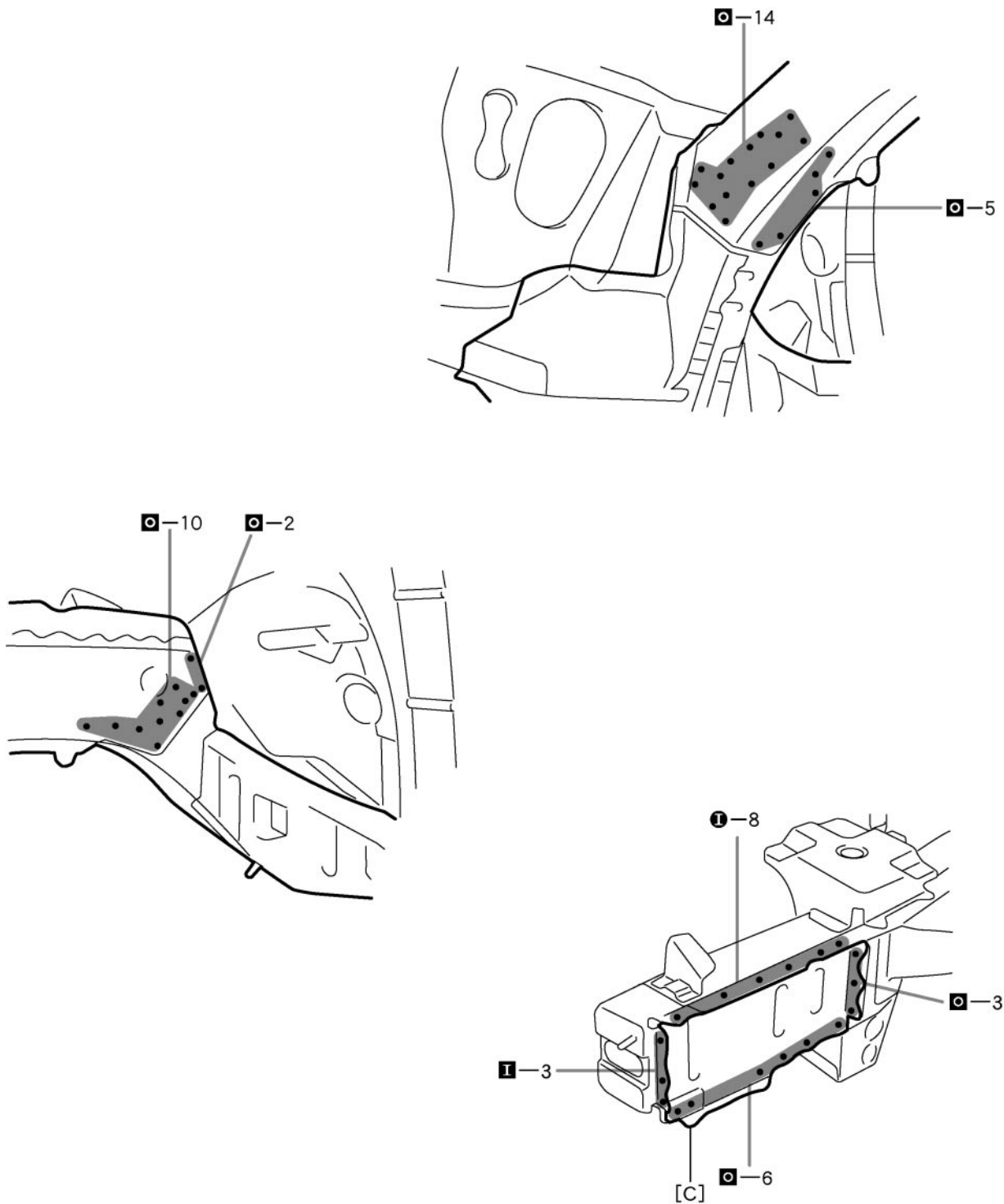
F16836

POINT

- 1 Remove the front sidemember and [A] from the new parts of front sidemember assembly.

PART NAME

[A] Front Sidemember Outer Plate



F17015

POINT

1 Make sure each measurement is correct, as this part affects the front wheel alignment.

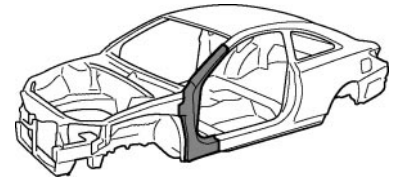
PART NAME

[C] Front Sidemember Extension

FRONT BODY PILLAR (CUT)

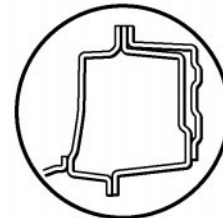
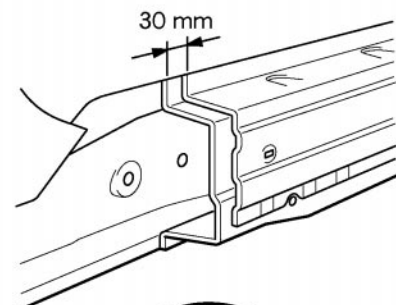
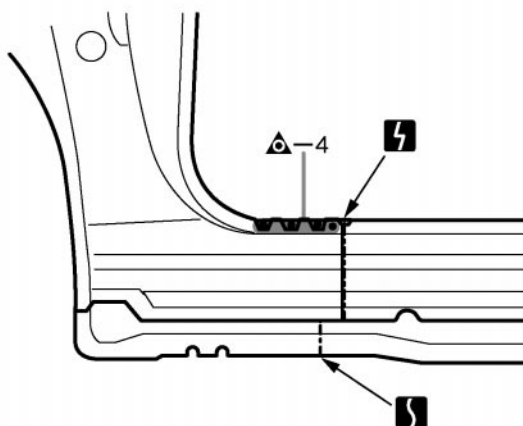
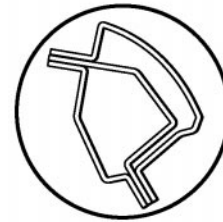
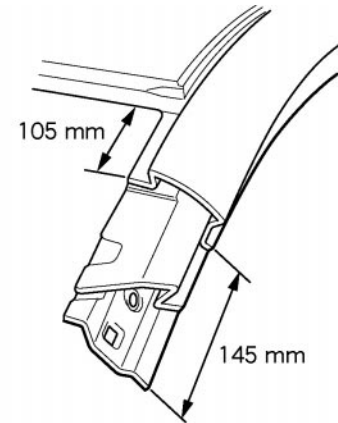
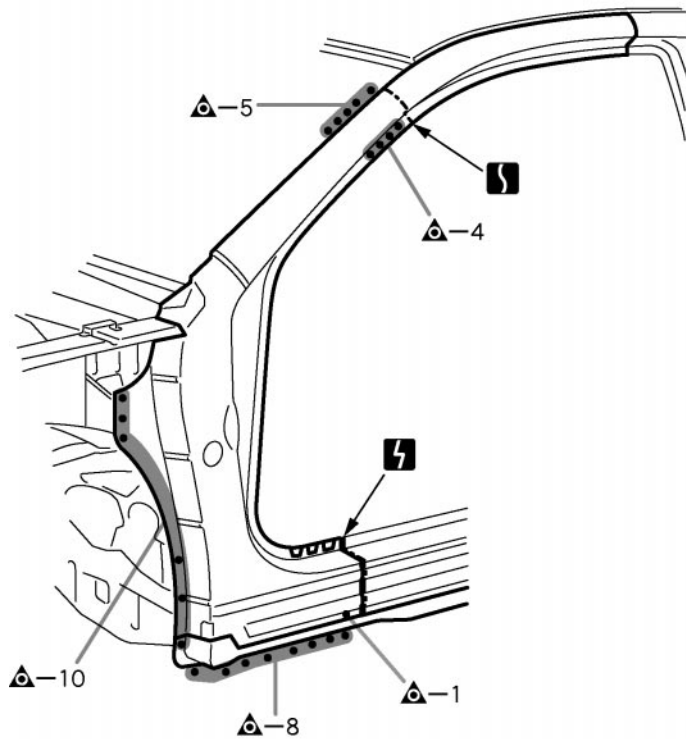
REPLACEMENT

With the cowl top side reinforcement and front body pillar lower gusset removed.



F16842A

REMOVAL

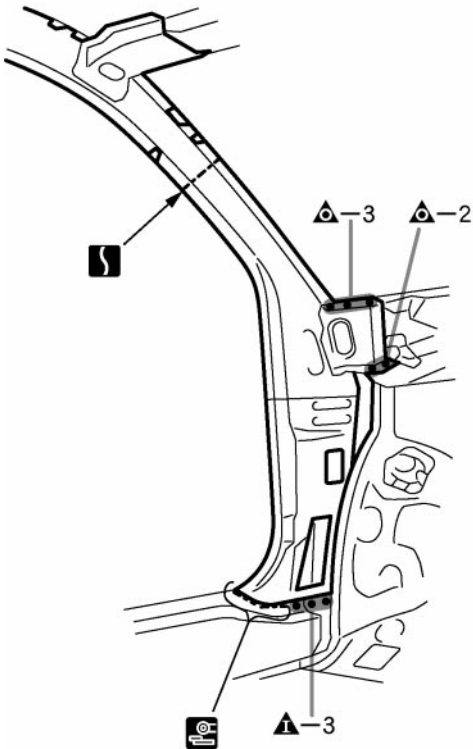
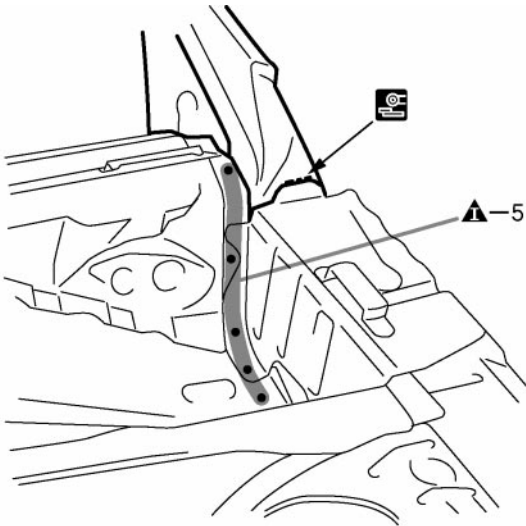


F16842

30 mm (1.18 in.)

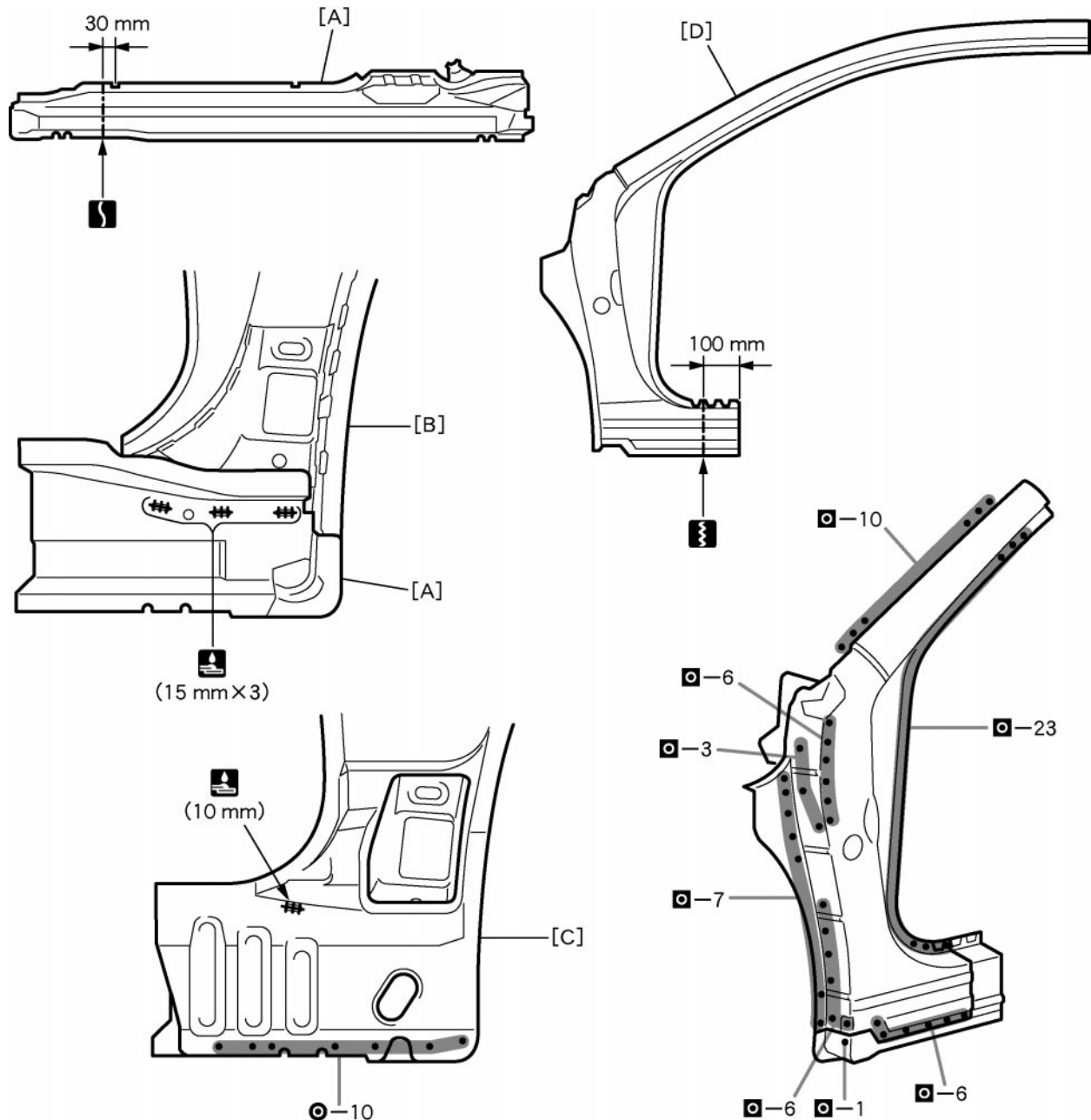
105 mm (4.13 in.)

145 mm (5.71 in.)



INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



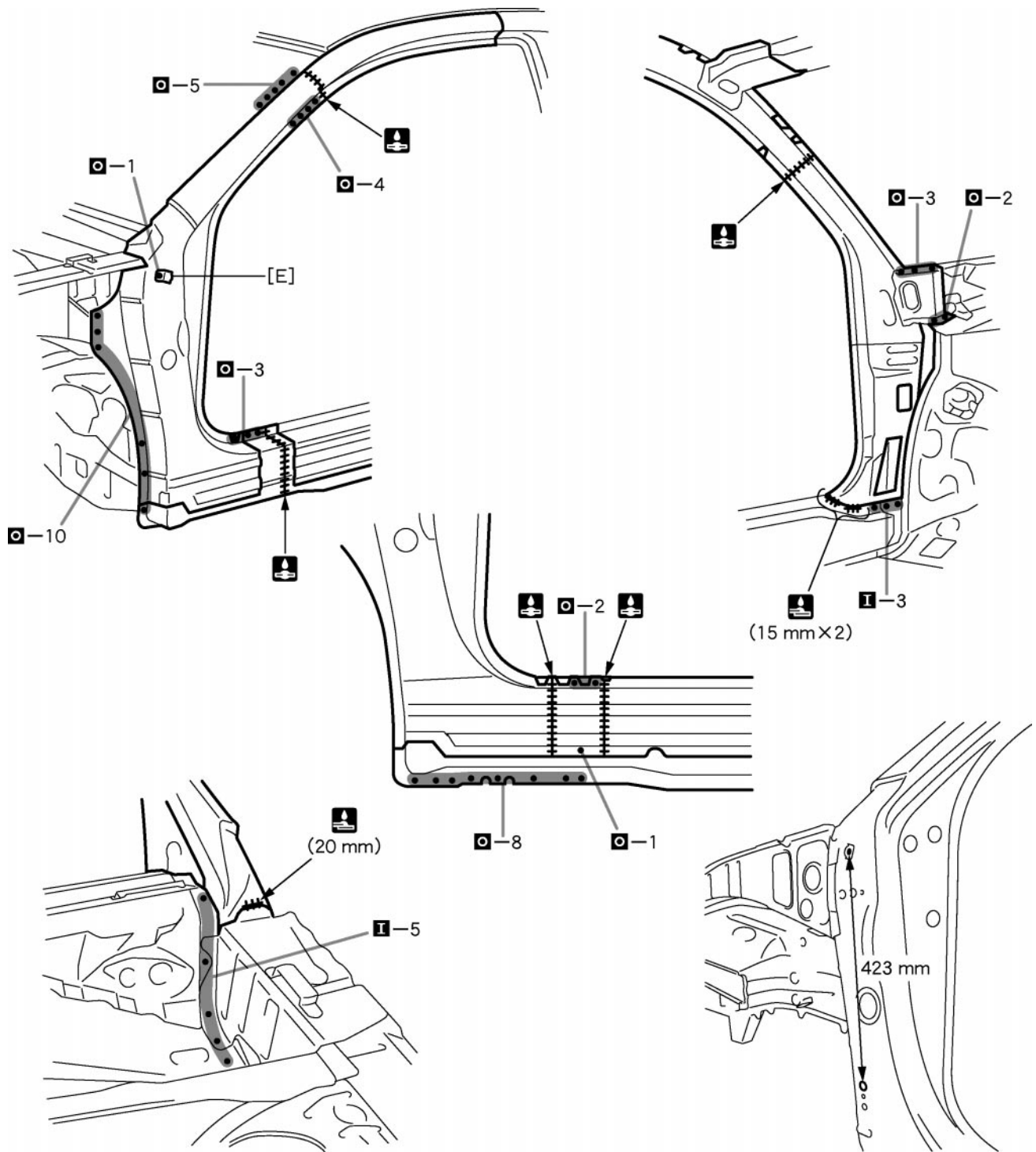
F16844

POINT

1 Before temporarily installing the new parts, weld the [A], [B], [C] and [D] with standard points.

PART NAME

[A] Center Body Pillar Lower Reinforce	[B] Front Body Pillar Lower Reinforce
[C] Cowl Side Panel	[D] Outer Pillar
10 mm (0.39 in.)	15 mm (0.59 in.)
30 mm (1.18 in.)	100 mm (3.94 in.)



F16845

POINT

- 1 Inspect the fitting of the front door, front fender and windshield glass, etc., before welding, since this affects the
appearance of the finish.
- 2 *1: Reference value

PART NAME

[E] No.6 Pillar Outer Bracket

15 mm (0.59 in.)

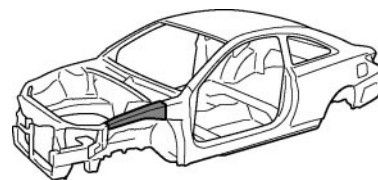
20 mm (0.79 in.)

423 mm (16.65 in.)

FRONT APRON TO COWL SIDE UPPER MEMBER (ASSY)

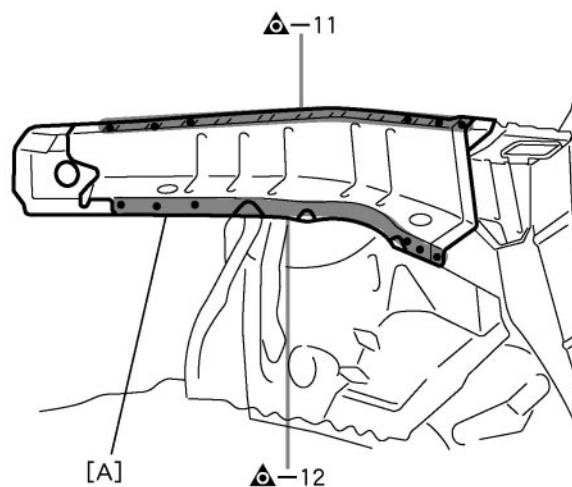
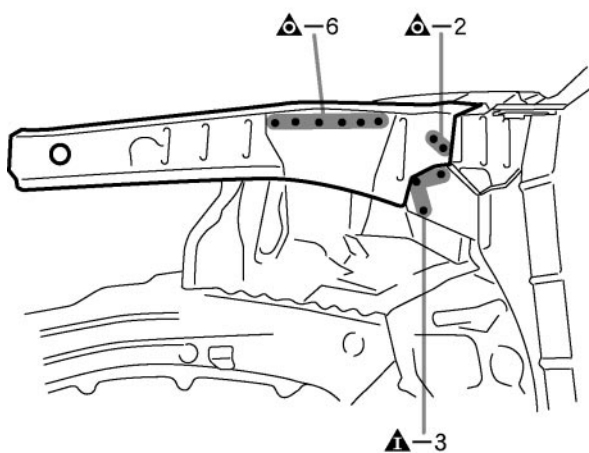
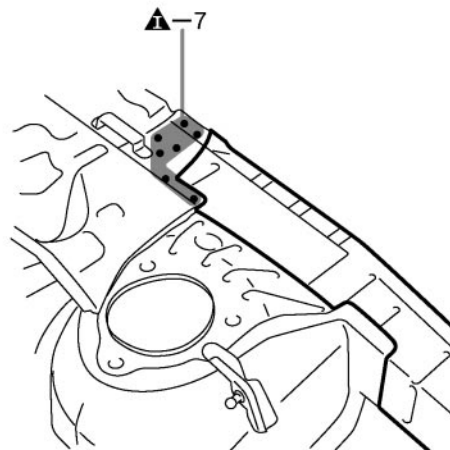
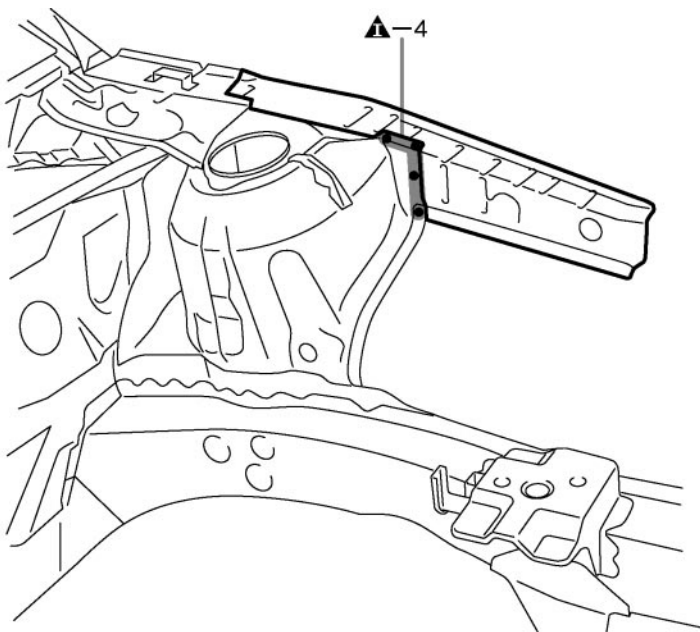
REPLACEMENT

With the front fender front apron and front body pillar lower gusset removed.



F16829A

REMOVAL



F16829

POINT

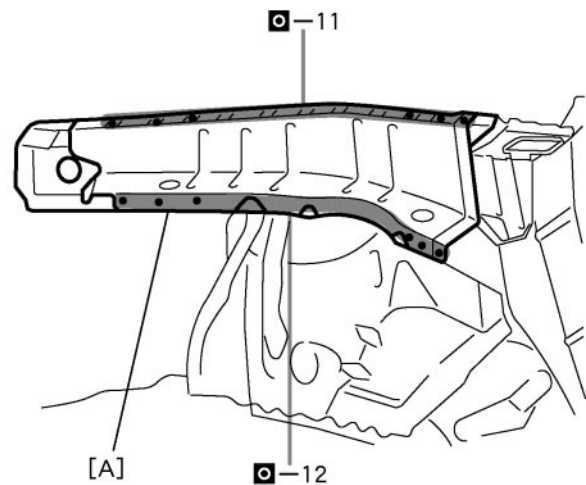
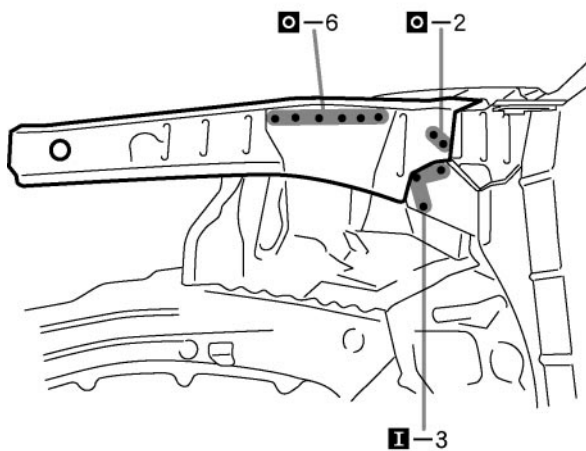
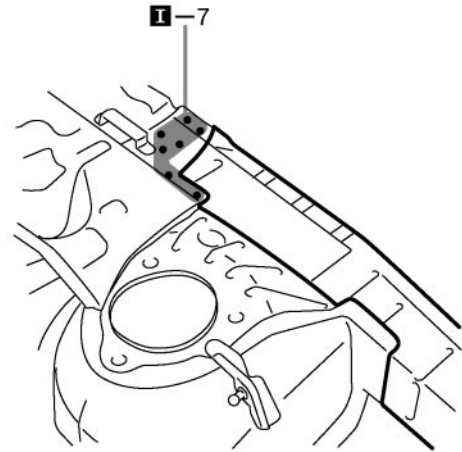
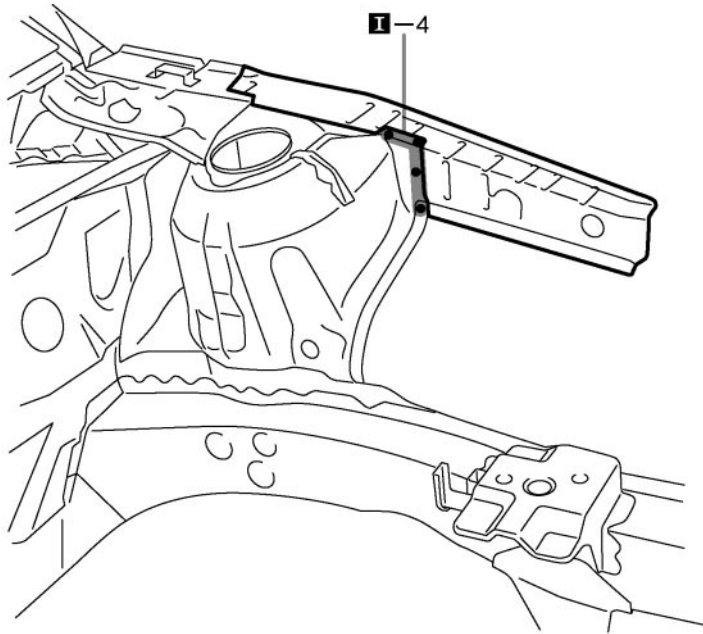
- 1 After remove the [A], remove the front apron to cowl side upper member.

PART NAME

[A] Front Apron To Cowl Side Lower Front Member

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F16830

POINT

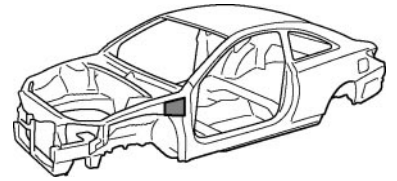
- 1 Inspect the fitting of the front fender and hood, etc., before welding, since this affects the appearance of the finish.

PART NAME

[A] Front Apron To Cowl Side Lower Front Member

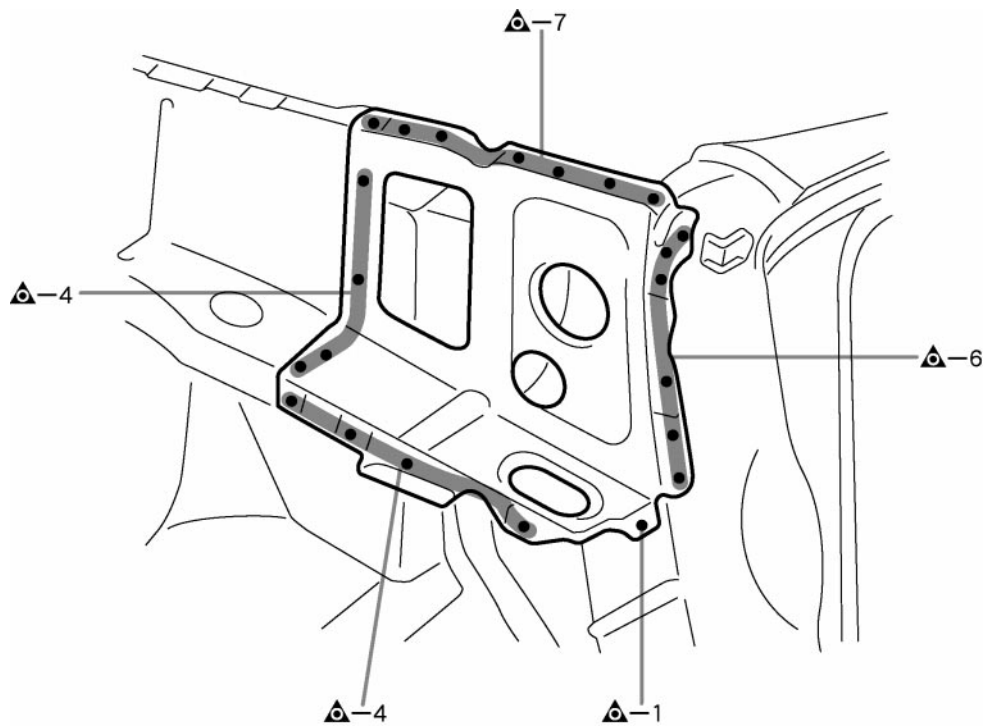
**FRONT BODY PILLAR LOWER GUSSET
(ASSY)**

REPLACEMENT



F16840A

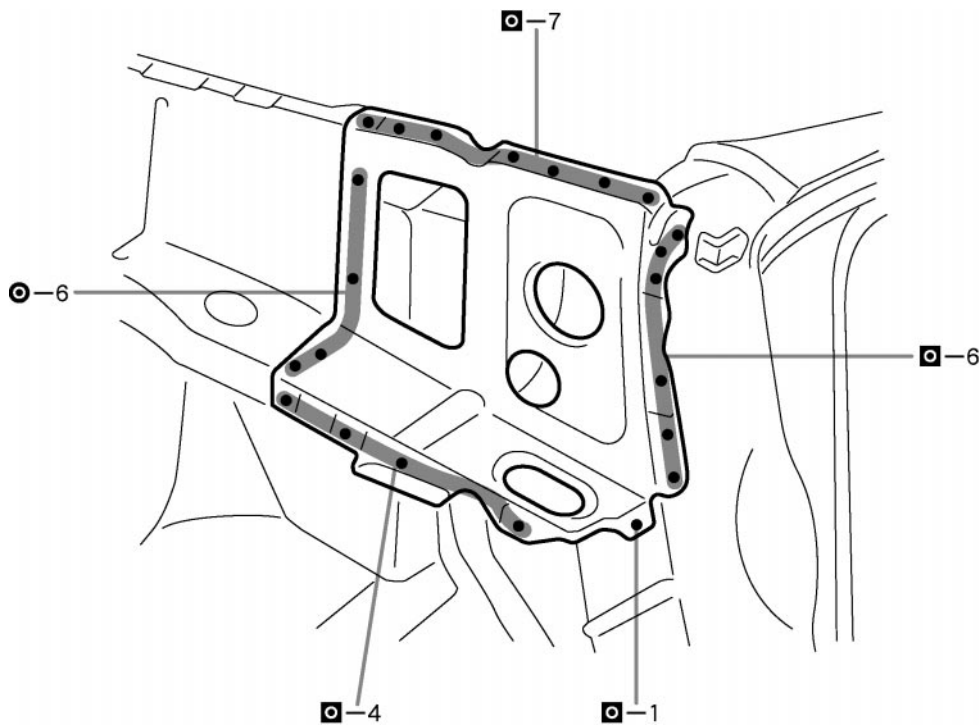
REMOVAL



F16840

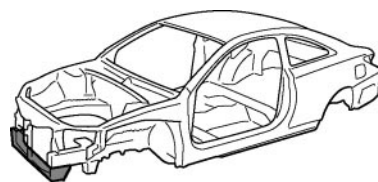
INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



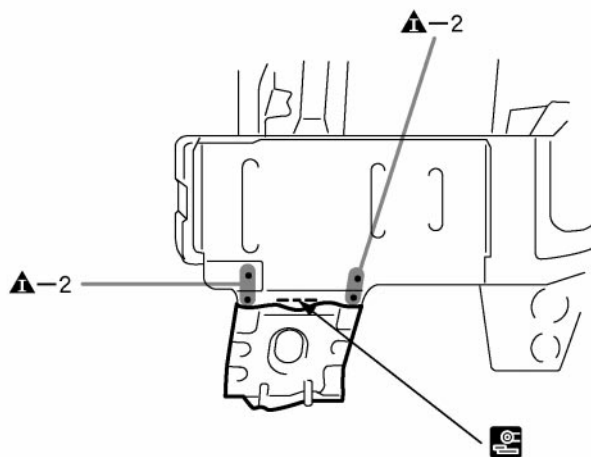
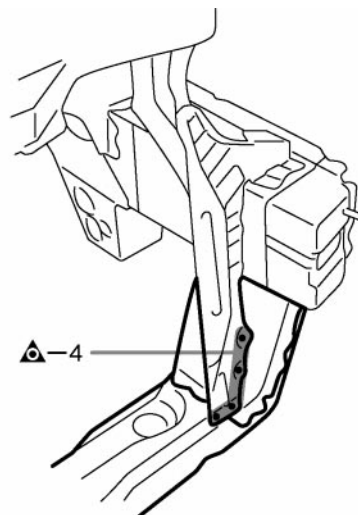
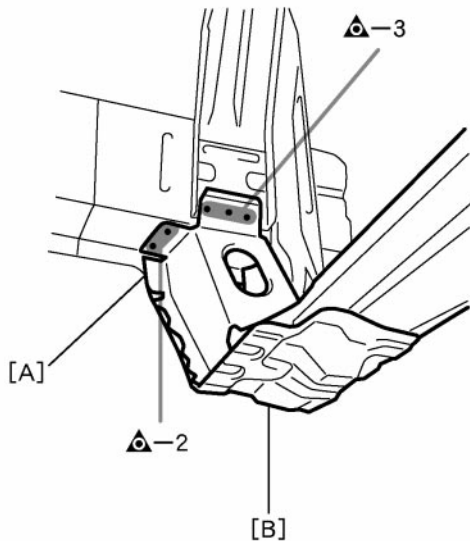
FRONT CROSSMEMBER (ASSY)

REPLACEMENT



F16823A

REMOVAL



F16823

POINT

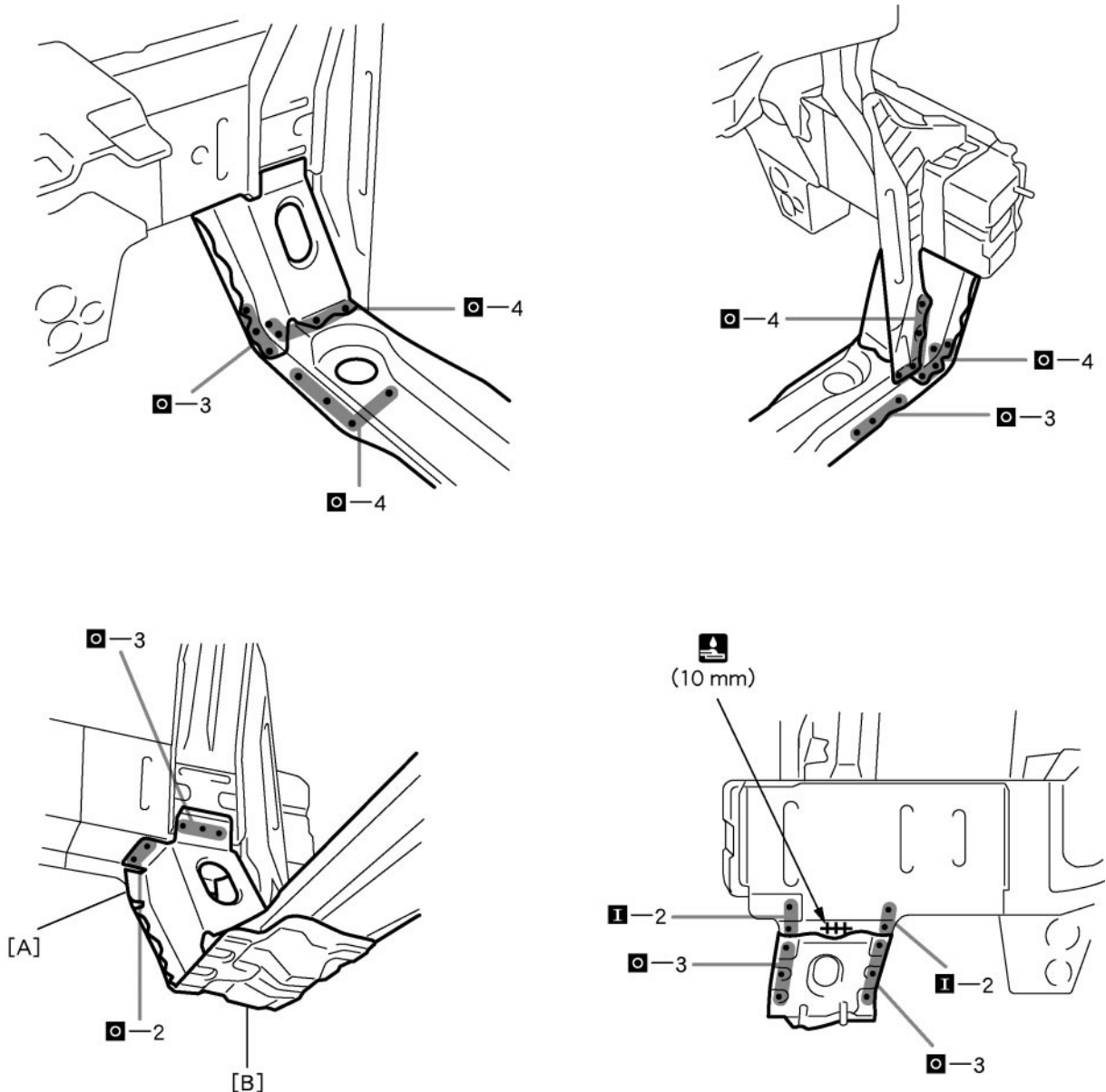
- 1 Remove the [A] and [B] at the same time.

PART NAME

[A] Front Crossmember No.1 Reinforcement [B] Front Crossmember Lower Reinforcement

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.

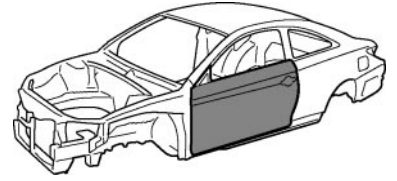


F16824

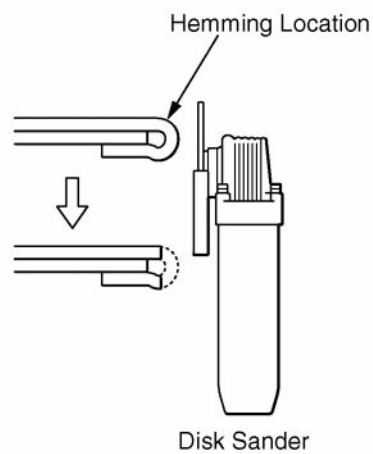
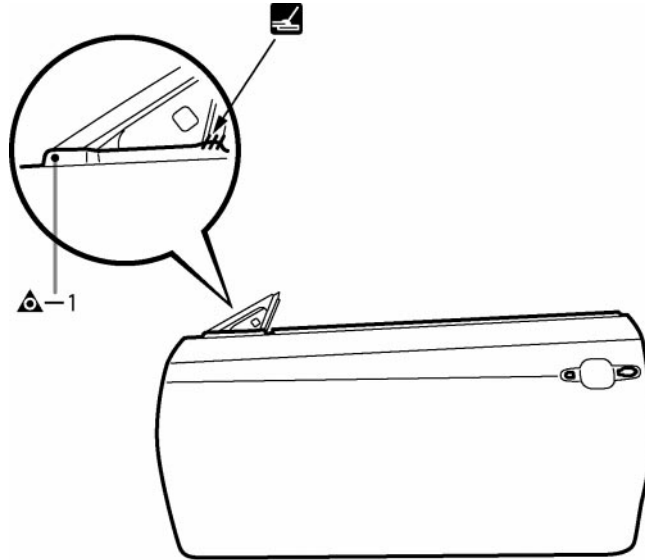
PART NAME

[A] Front Crossmember No.1 Reinforcement [B] Front Crossmember Lower Reinforcement

10 mm (0.39 in.)

FRONT DOOR OUTER PANEL (ASSY)**REPLACEMENT**

F16846A

REMOVAL

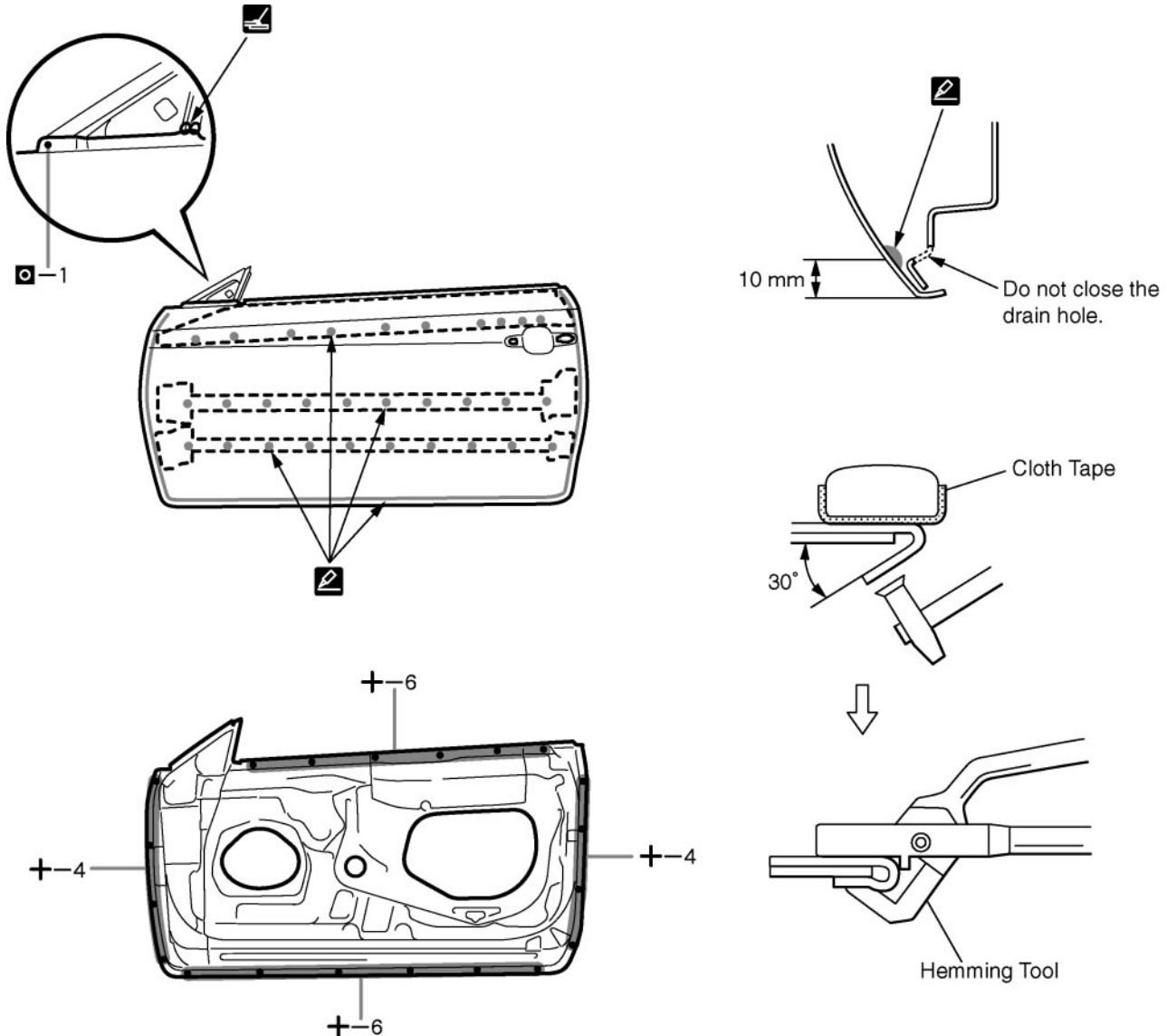
F16846

POINT

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

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F16847

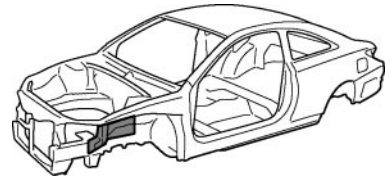
POINT

- Before temporarily installing the new parts, apply body sealer to the reinforcement, side impact protection beam and back side of the new parts.
HINT:
 - Apply sealer evenly about 10 mm (0.39 in.) from the flange and 3 mm (0.12 in.) in diameter to the outer panel and apply just enough sealer for the reinforcement and side impact protection beam to make contact.
- Bend the flange hem about 30° with a hammer and dolly, then fasten tightly with a hemming tool.
HINT:
 - Perform hemming in three step, being careful not to warp the panel.
 - If a hemming tool cannot be used, hem with a hammer and dolly.

FRONT FENDER FRONT APRON (ASSY)

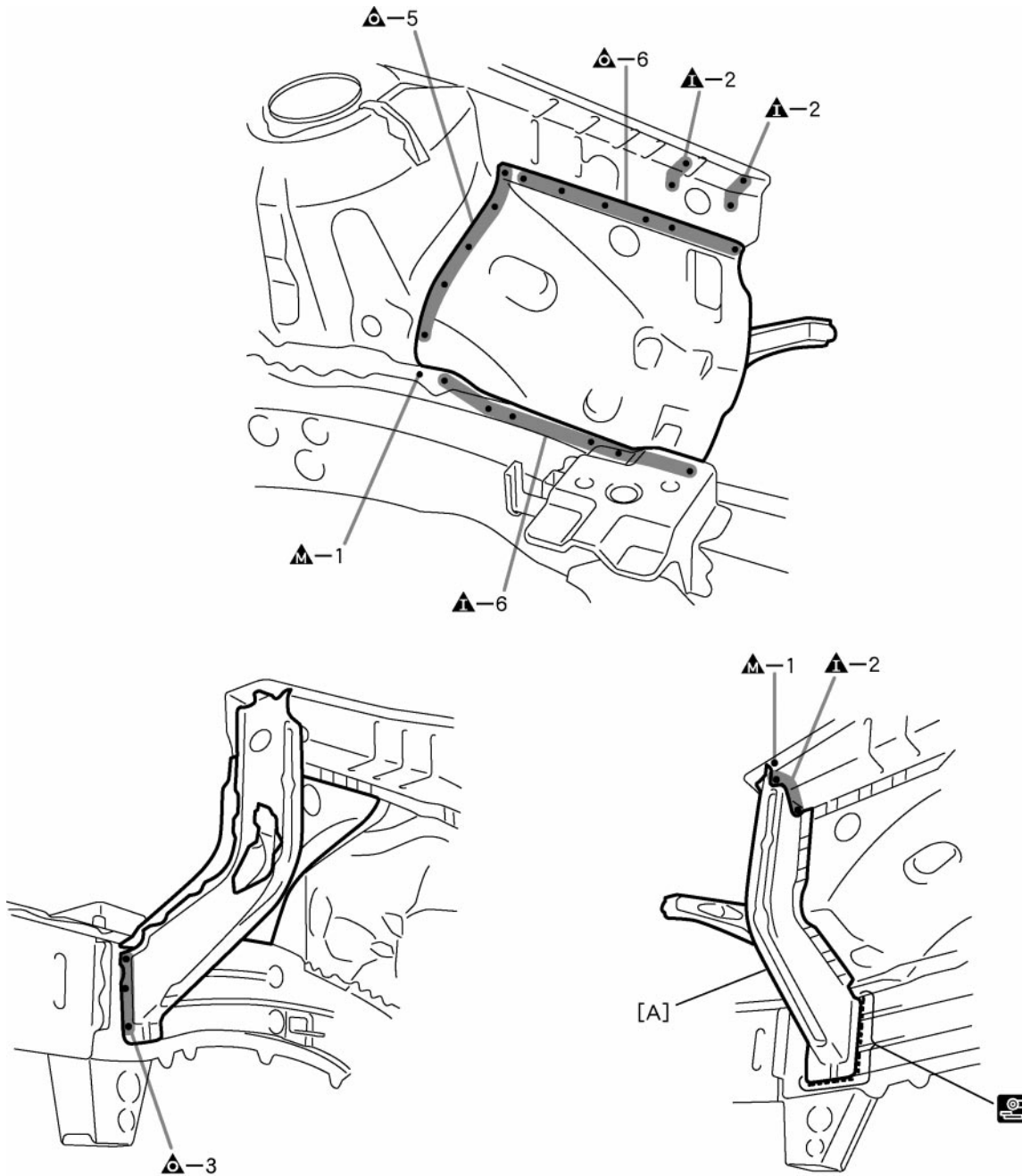
REPLACEMENT

With the radiator upper support removed.



F16827A

REMOVAL



F16827

POINT

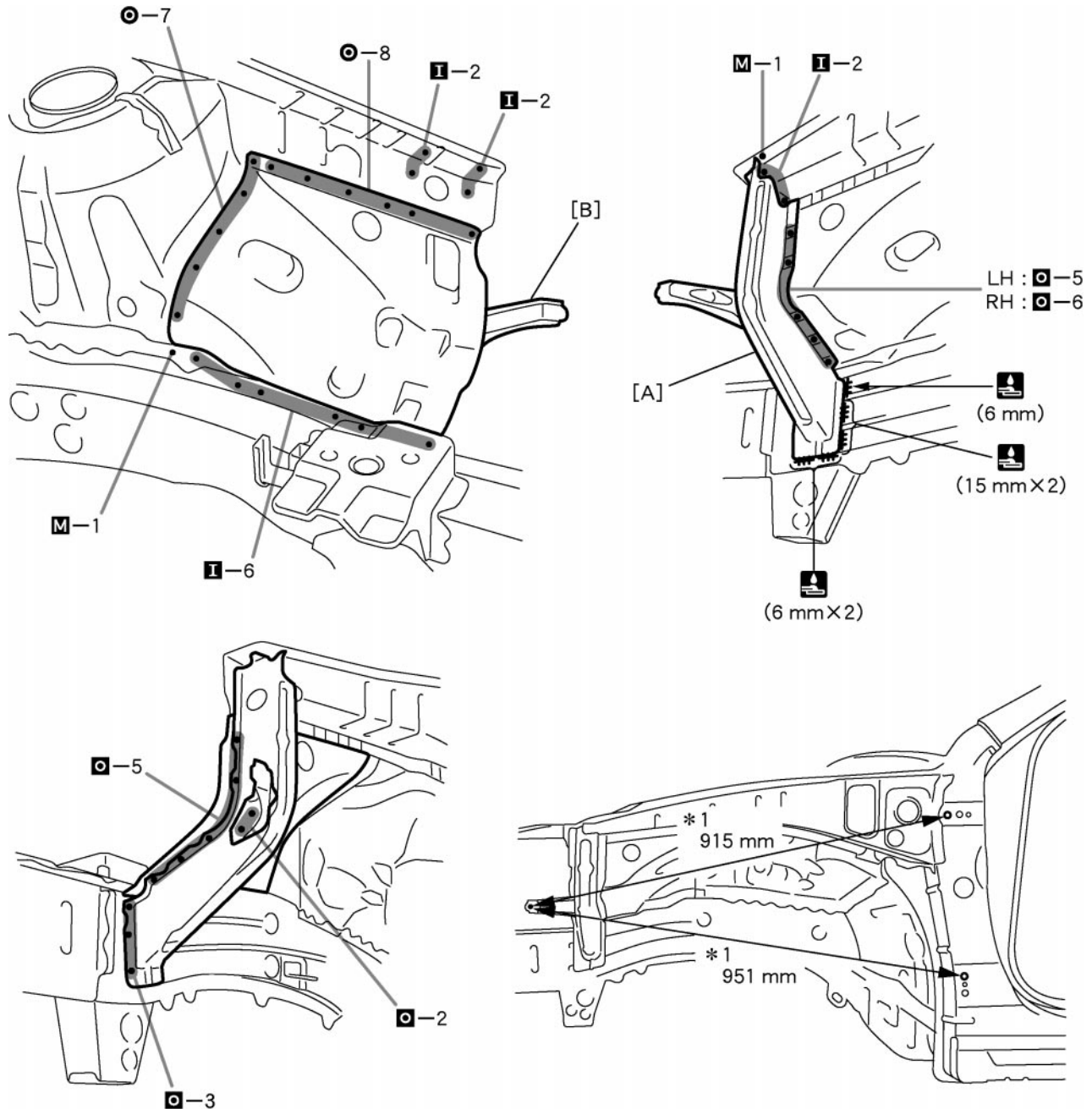
- 1 Remove the [A] at the same time.

PART NAME

[A] Front Fender Apron Front Extension

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F16828

POINT

1 *1: Reference value

PART NAME

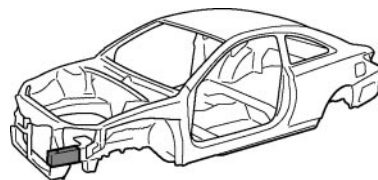
[A] Front Fender Apron Front Extension
6 mm (0.24 in.) 15 mm (0.59 in.)

[B] Fender Apron Plate
915 mm (36.02 in.) 951 mm (37.44 in.)

FRONT SIDEMEMBER (CUT-P)

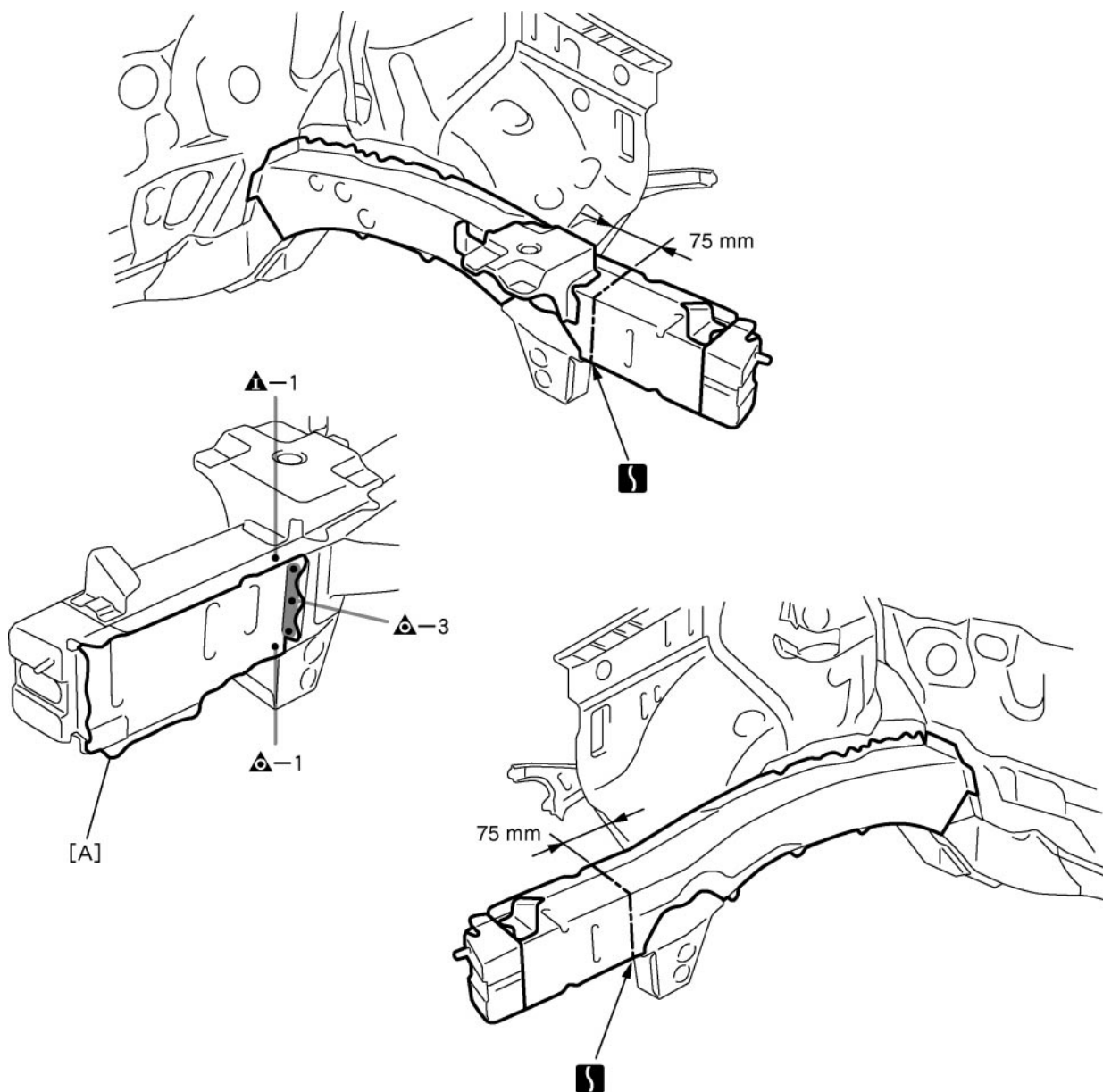
REPLACEMENT

With the radiator support upper brace, radiator side support and front cross-member removed.



F16833A

REMOVAL



F16833

POINT

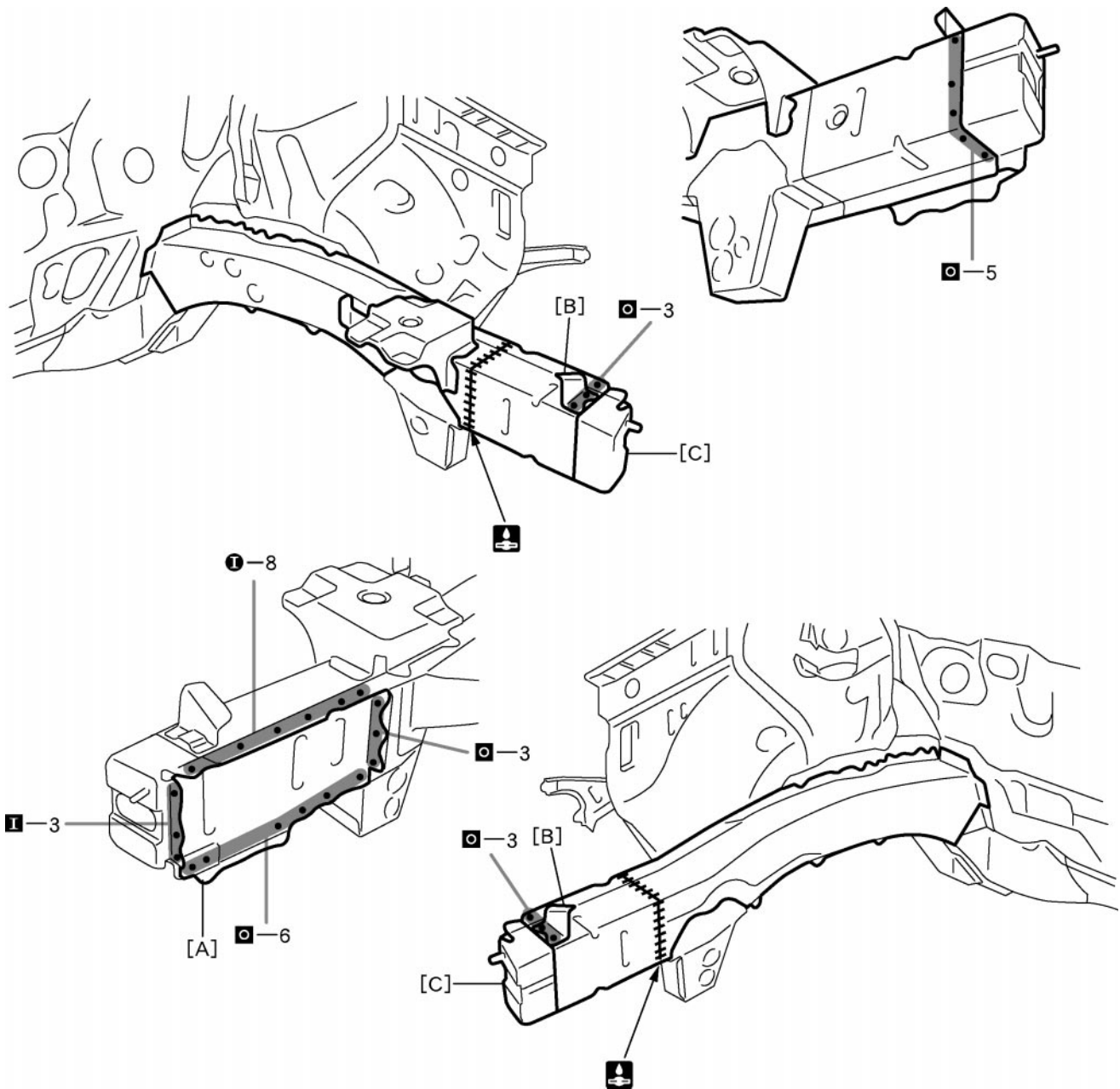
1 Remove the [A] at the same time.

PART NAME

[A] Front Sidemember Extension
75 mm (2.95 in.)

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



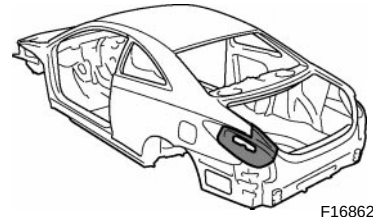
F16834

PART NAME

- [A] Front Sidemember Extension [B] Front Crossmember Side Gusset
 [C] Front Bumper Mounting Reinforcement

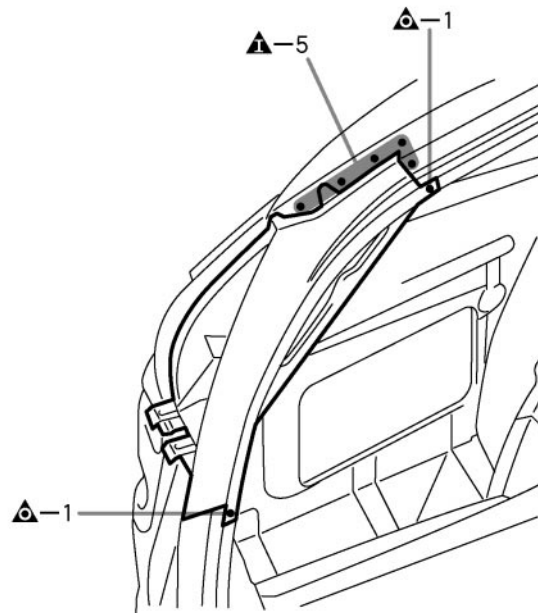
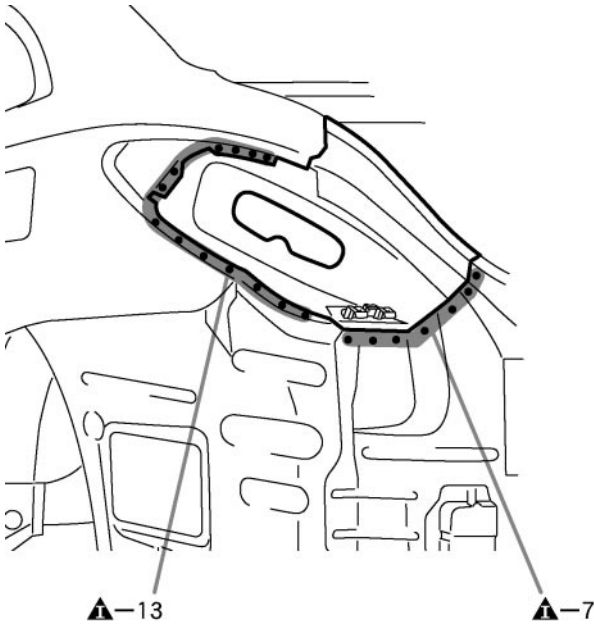
LUGGAGE COMPARTMENT OPENING TROUGH (ASSY)

REPLACEMENT



F16862A

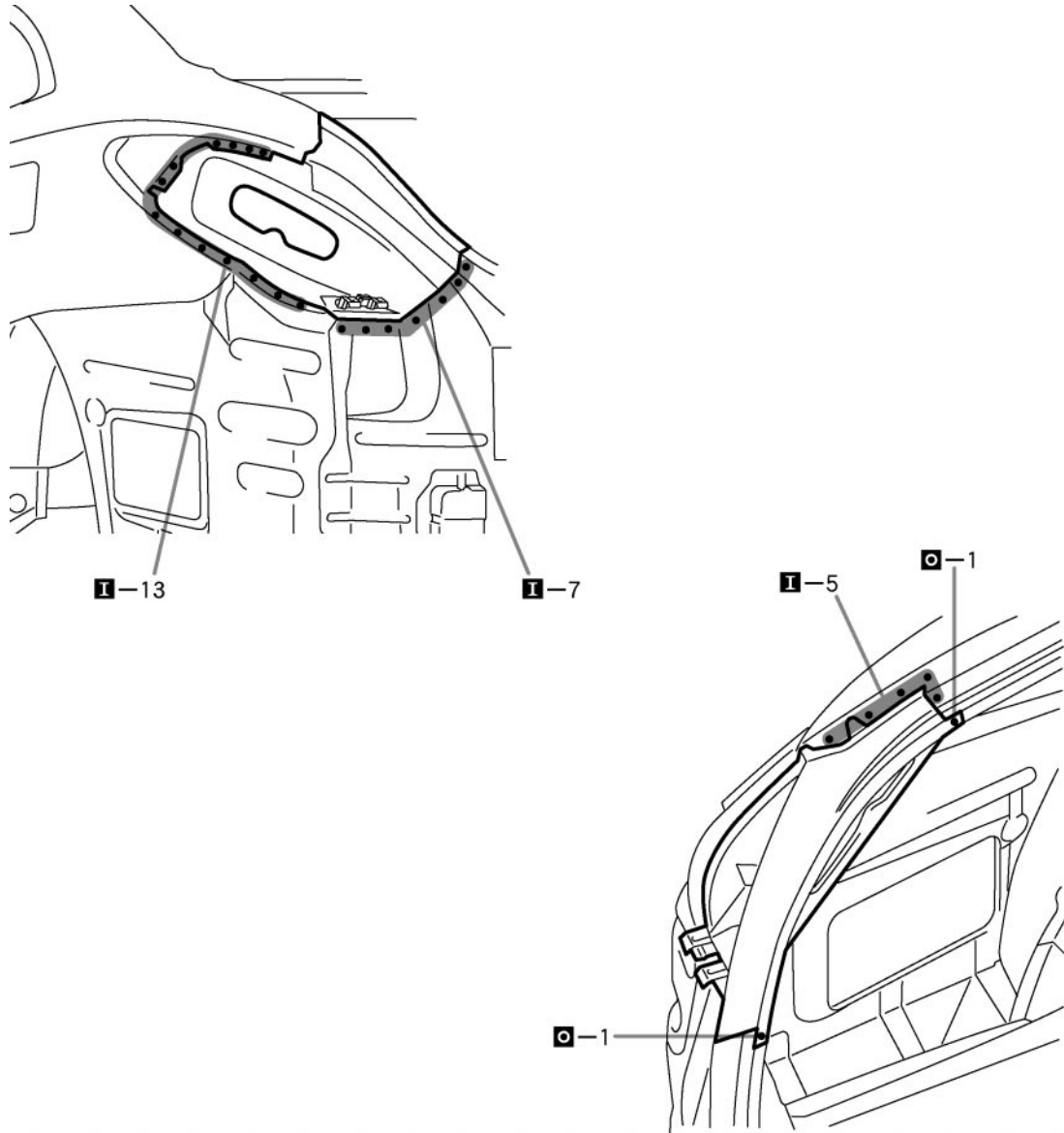
REMOVAL



F16862

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.

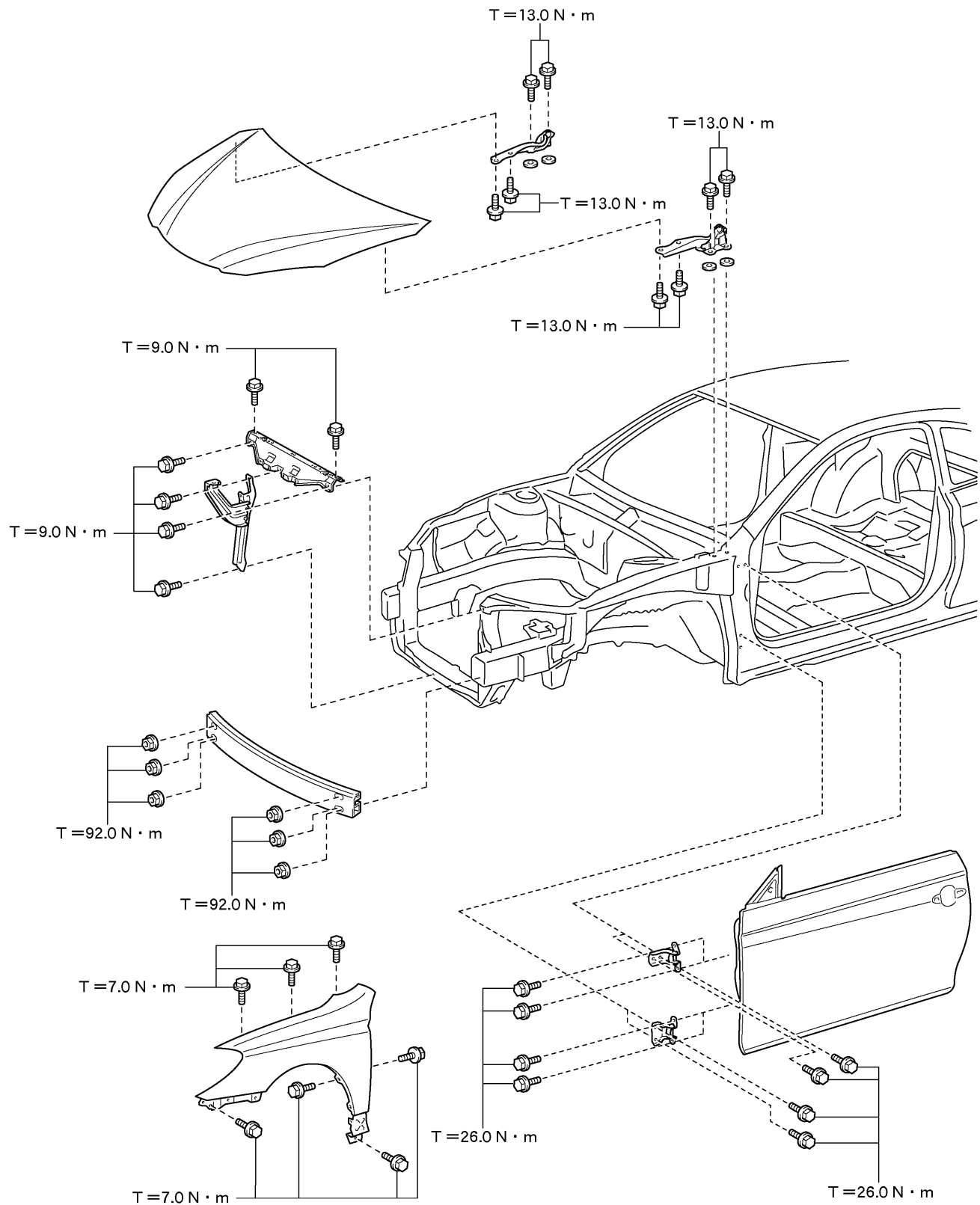


F16863

POINT

- 1 Inspect the fitting of the luggage compartment door and rear combination light, etc., before welding, since this affects the appearance of the finish.

OUTER PANEL INSTALLATION TORQUE



F16811

7.0 N·m (71 kgf·cm, 62 in.·lbf)

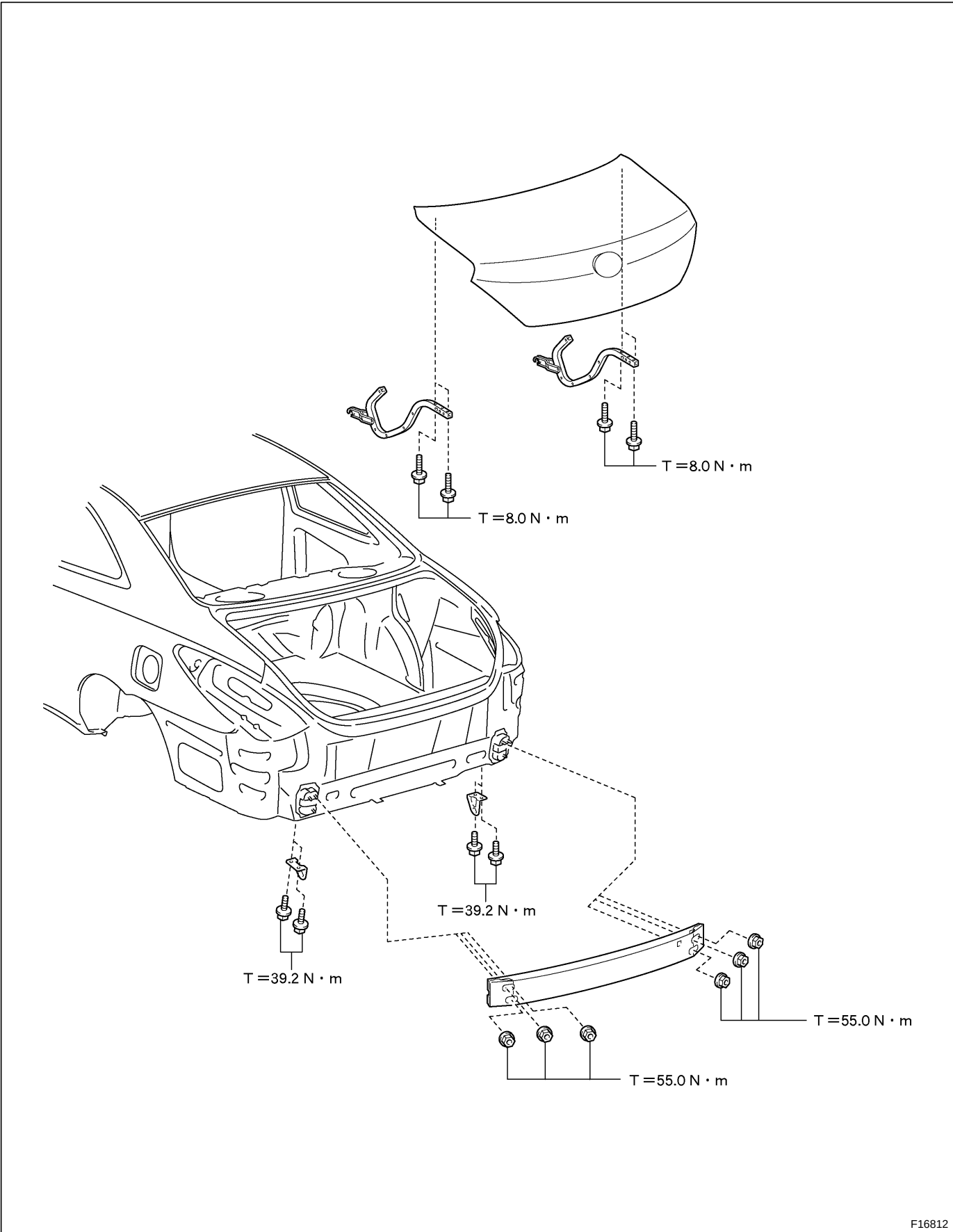
9.0 N·m (92 kgf·cm, 80 in.·lbf)

13.0 N·m (133 kgf·cm, 10 ft·lbf)

26.0 N·m (265 kgf·cm, 19 ft·lbf)

92.0 N·m (938 kgf·cm, 68 ft·lbf)

—

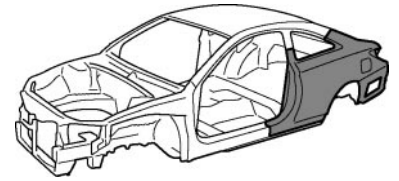


F16812

8.0 N·m (82 kgf·cm, 71 in·lbf)	39.2 N·m (400 kgf·cm, 29 ft·lbf)	55.0 N·m (561 kgf·cm, 41 ft·lbf)
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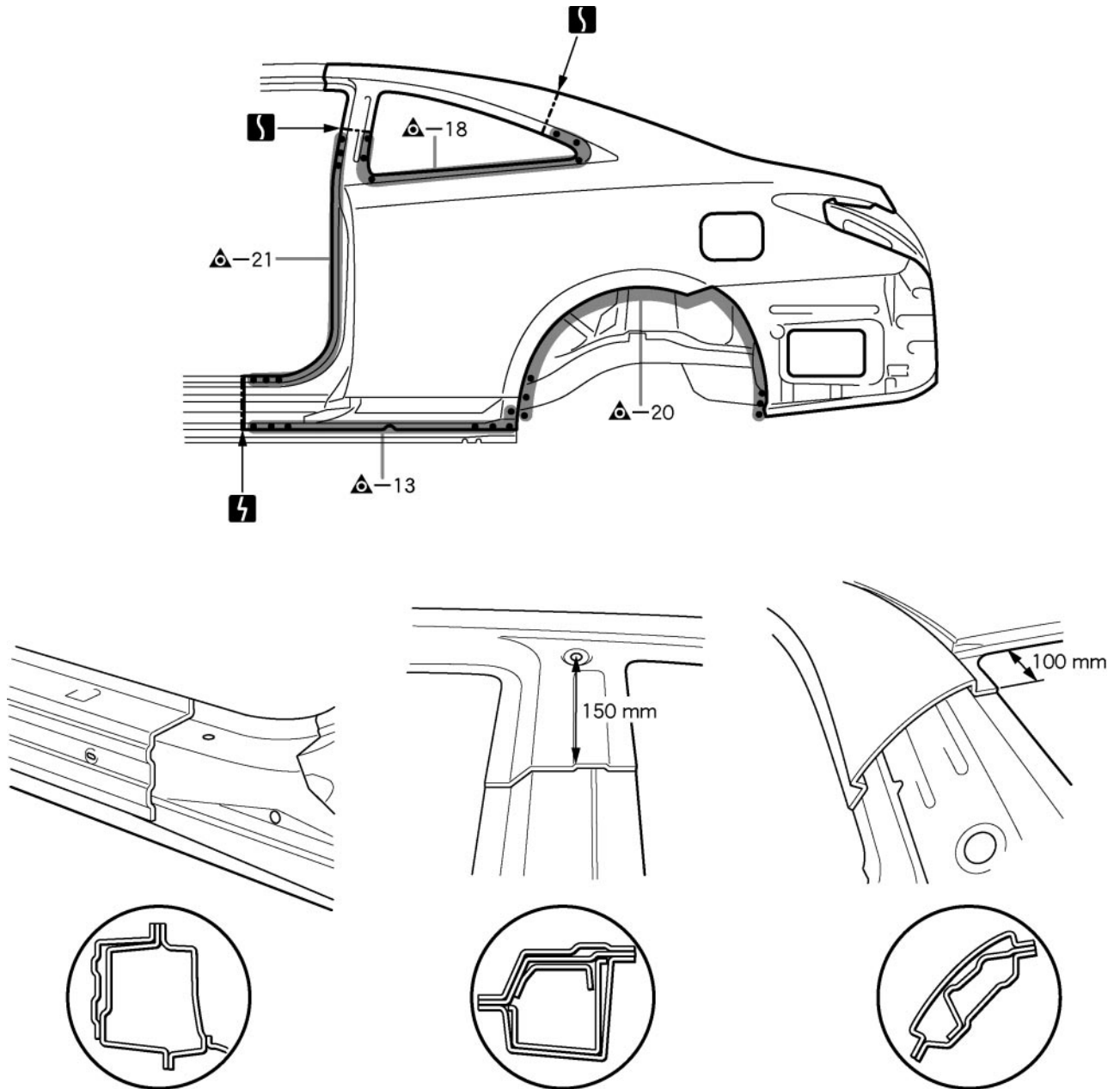
QUARTER PANEL (CUT)

REPLACEMENT



F16854A

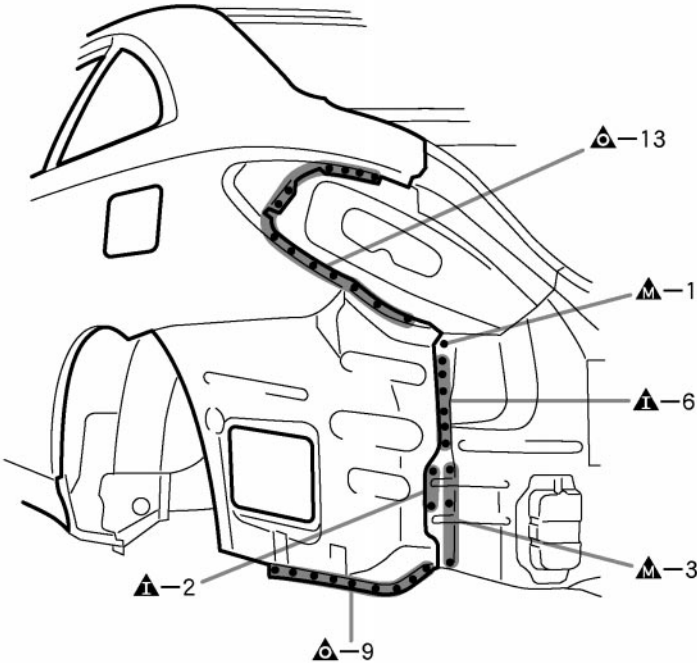
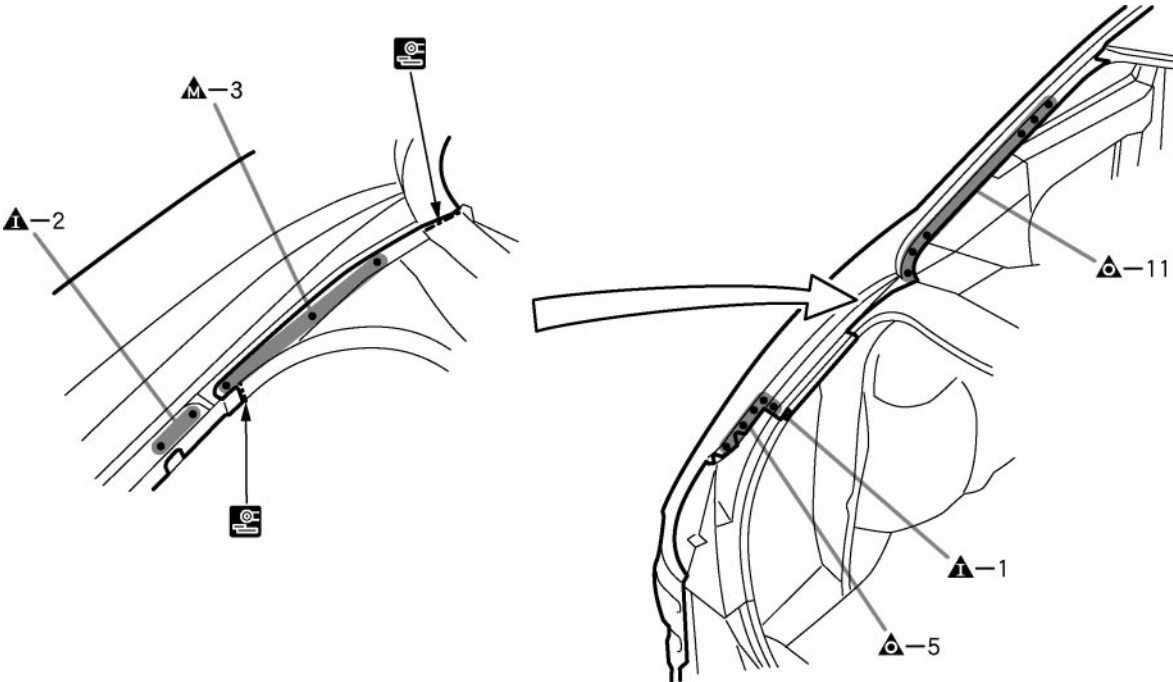
REMOVAL



F16854

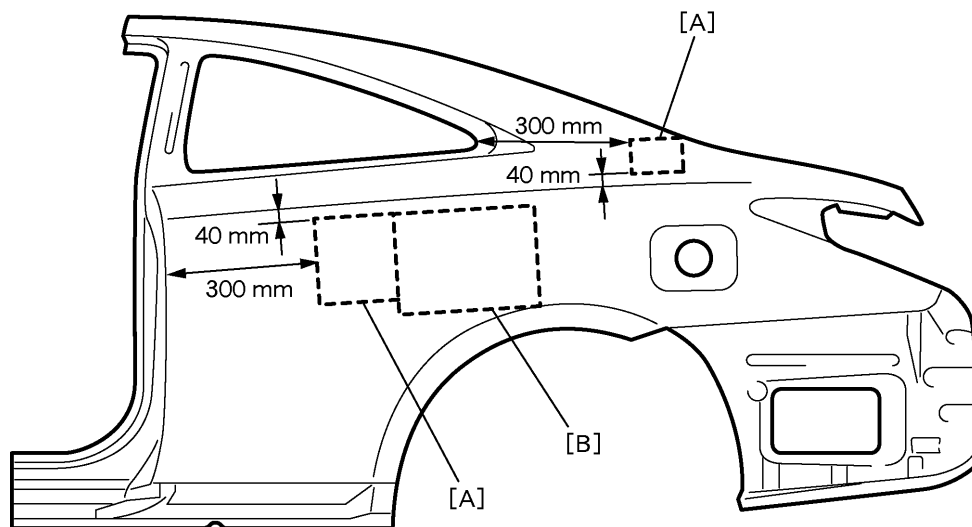
100 mm (3.94 in.)

150 mm (5.91 in.)



INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F16856

POINT

- 1 Before initial spot welding the new parts, attach the quarter panel silencer sheet to the inside of the quarter panel, at the position indicated on the diagram above.

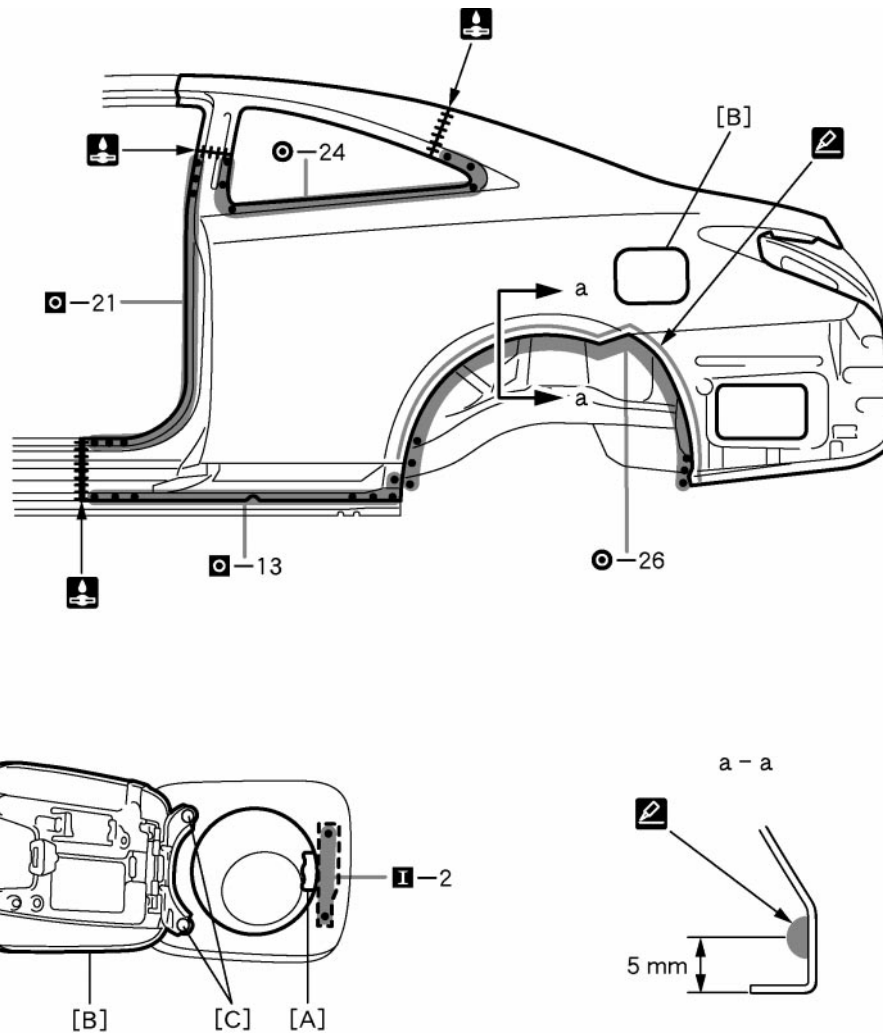
HINT:

- 1) Use the quarter panel silencer sheet (Part No.67817-44010).

PART NAME

- [A] Quarter Panel Silencer Sheet (150 mm × 150 mm)
 [B] Quarter Panel Silencer Sheet (175 mm × 375 mm)

40 mm (1.57 in.) 150 mm (5.91 in.) 175 mm (6.89 in.) 300 mm (11.81 in.) 375 mm (14.76 in.)



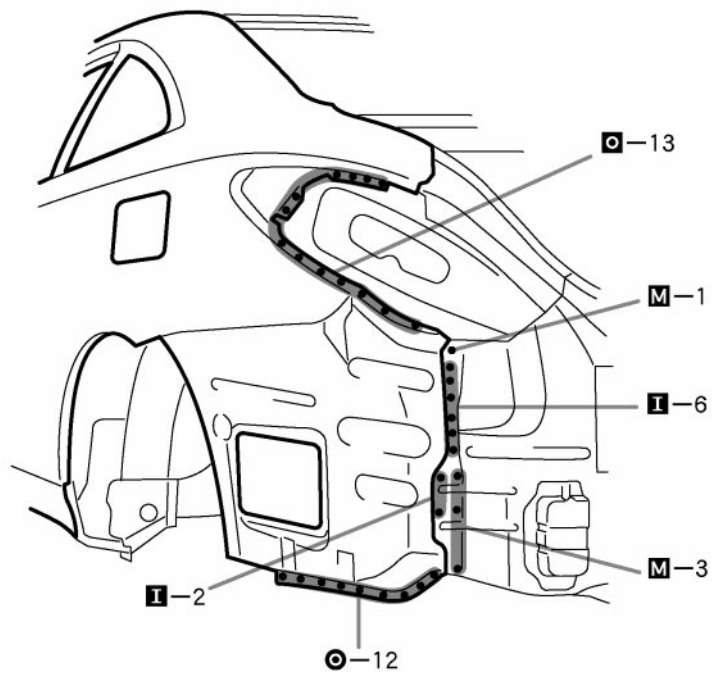
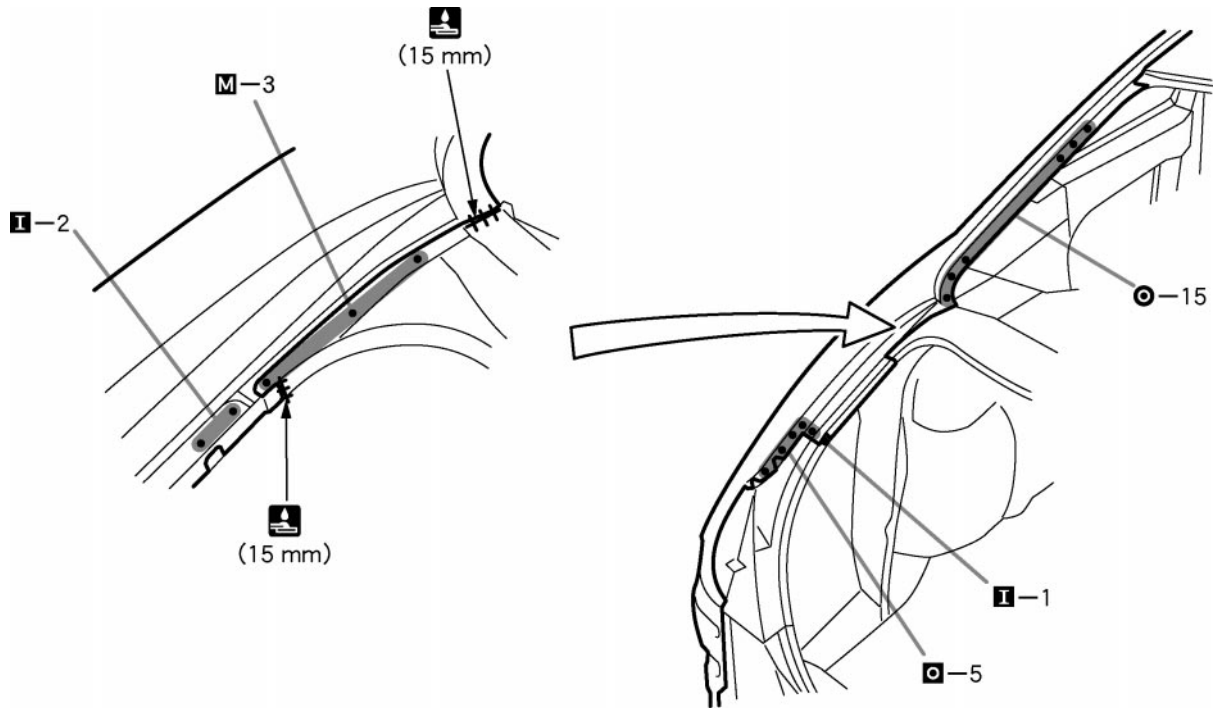
F16857

POINT

- 1 Before temporarily installing the new parts, apply body sealer to the wheel arch.
HINT:
 - 1) Apply body sealer 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 Inspect the fitting of the front door, luggage compartment door and rear combination ligh, etc., before welding, since this affects the appearance of the finish.

PART NAME

[A] Quarter Panel Retainer [B] Fuel Filler Opening Lid [C] Waterproof Rivets



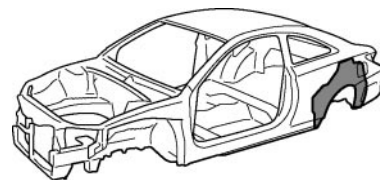
F16885

15 mm (0.59 in.)

QUARTER WHEEL HOUSING OUTER PANEL (ASSY)

REPLACEMENT

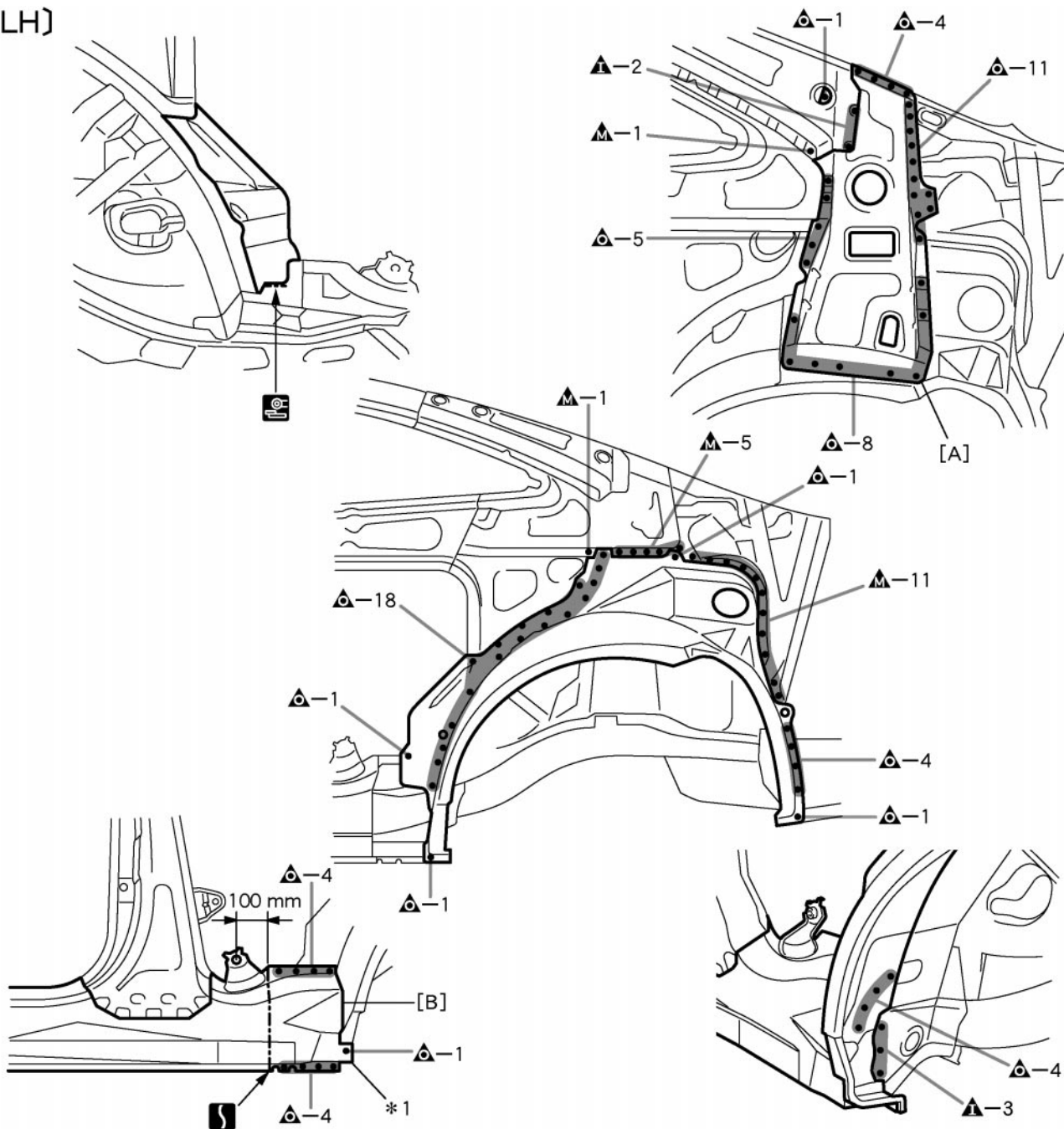
With the quarter panel removed.



F16858A

REMOVAL

[LH]



F16858

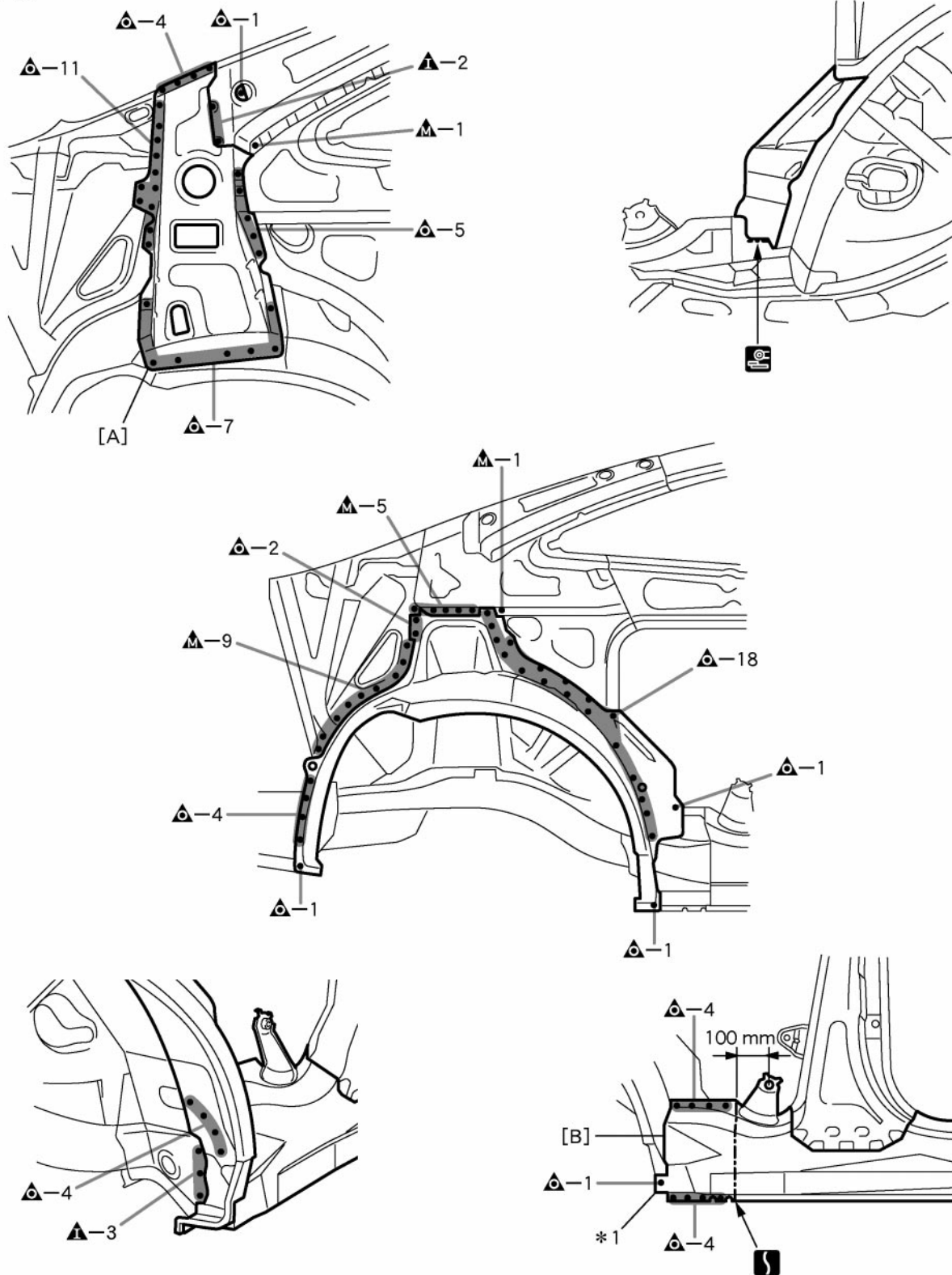
POINT

- 1 After removing the [A] and [B], remove the quarter wheel housing outer panel.
- 2 *1: Reuse

PART NAME

[A] Roof Side Outer Panel [B] Center Body Pillar Lower Reinforce
100 mm (3.94 in.)

[RH]



F16859

POINT

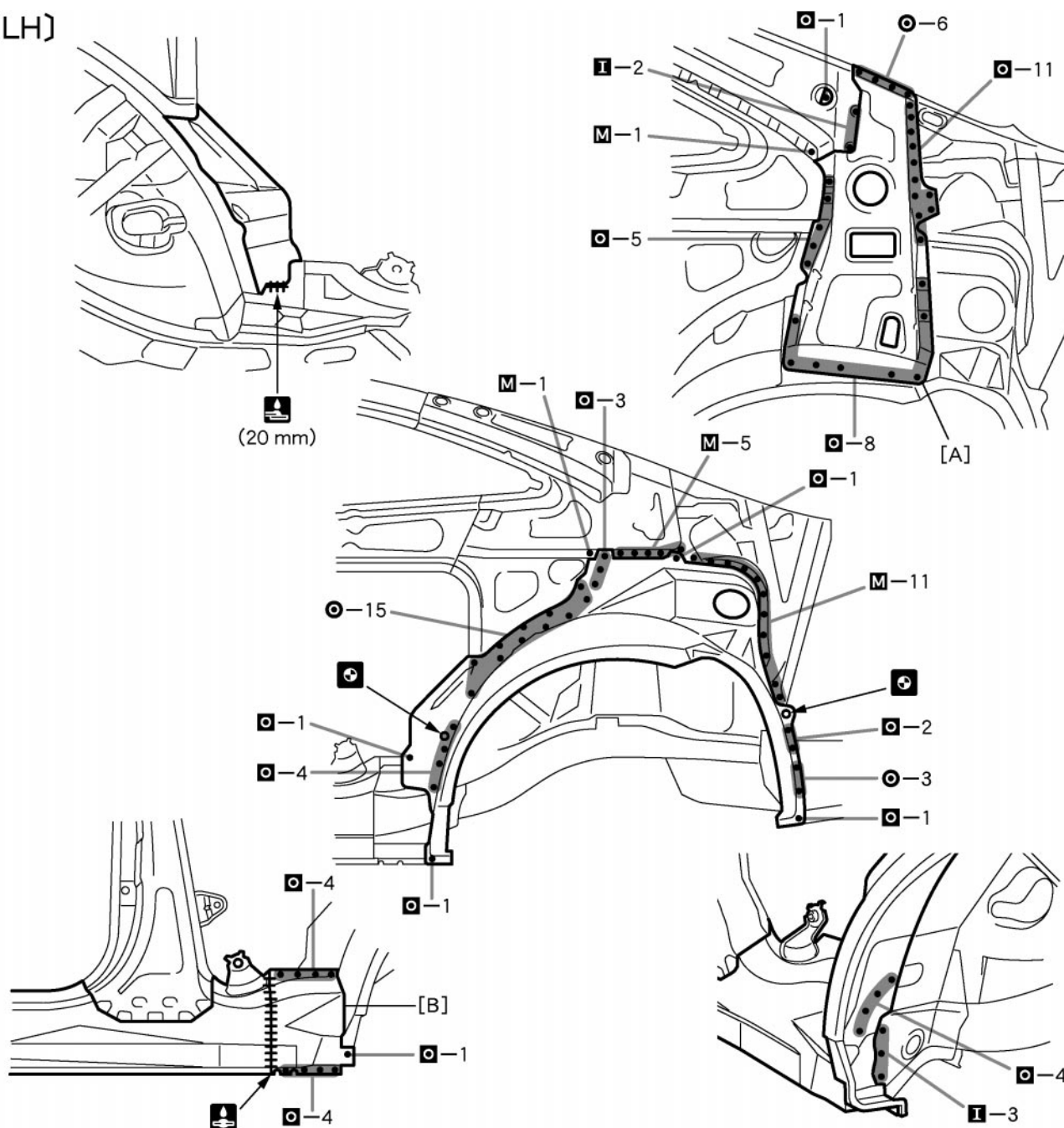
- 1 After removing the [A] and [B], remove the quarter wheel housing outer panel.
- 2 *1: Reuse

PART NAME

[A] Roof Side Outer Panel 100 mm (3.94 in.)

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.

[LH]

F16860

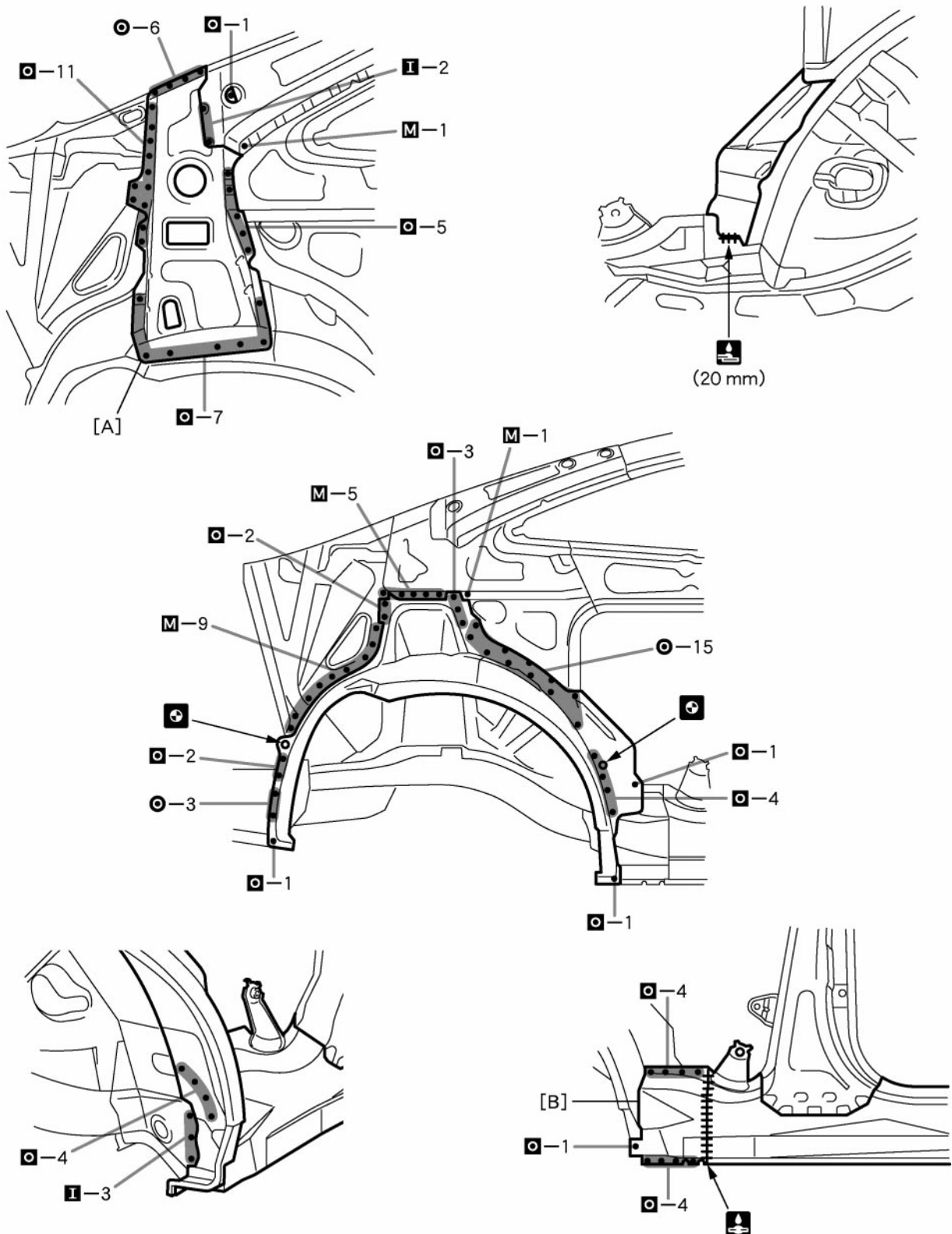
POINT

- 1 After welding the quarter wheel housing outer panel to the vehicle side install the [A] and [B].

PART NAME

[A] Roof Side Outer Panel [B] Center Body Pillar Lower Reinforce
20 mm (0.79 in.)

[RH]



F16861

POINT

1 After welding the quarter wheel housing outer panel to the vehicle side install the [A] and [B].

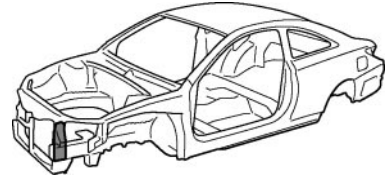
PART NAME

[A] Roof Side Outer Panel [B] Center Body Pillar Lower Reinforce
20 mm (0.79 in.)

RADIATOR SUPPORT UPPER BRACE (ASSY)

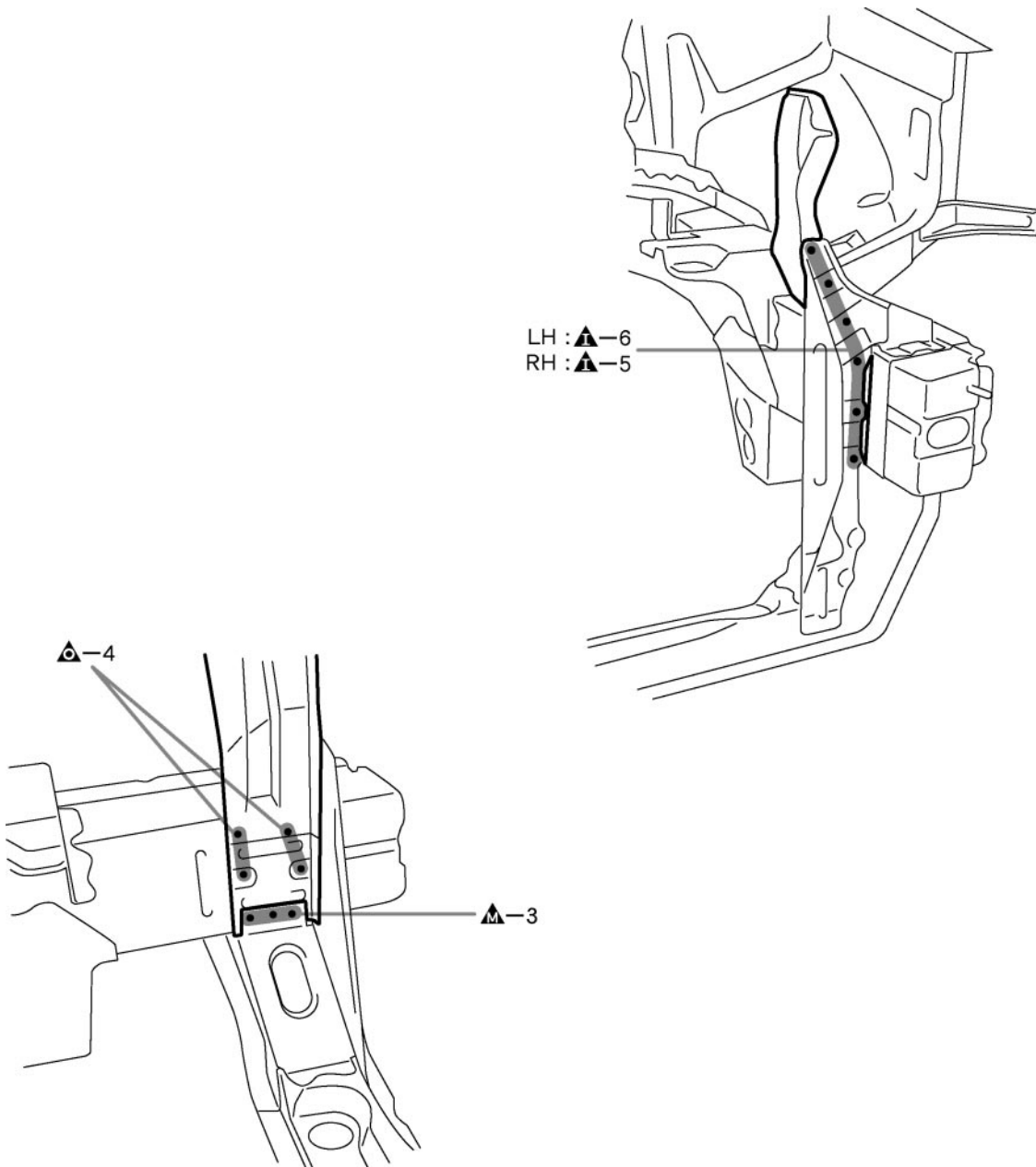
REPLACEMENT

With the radiator upper support removed.



F16819A

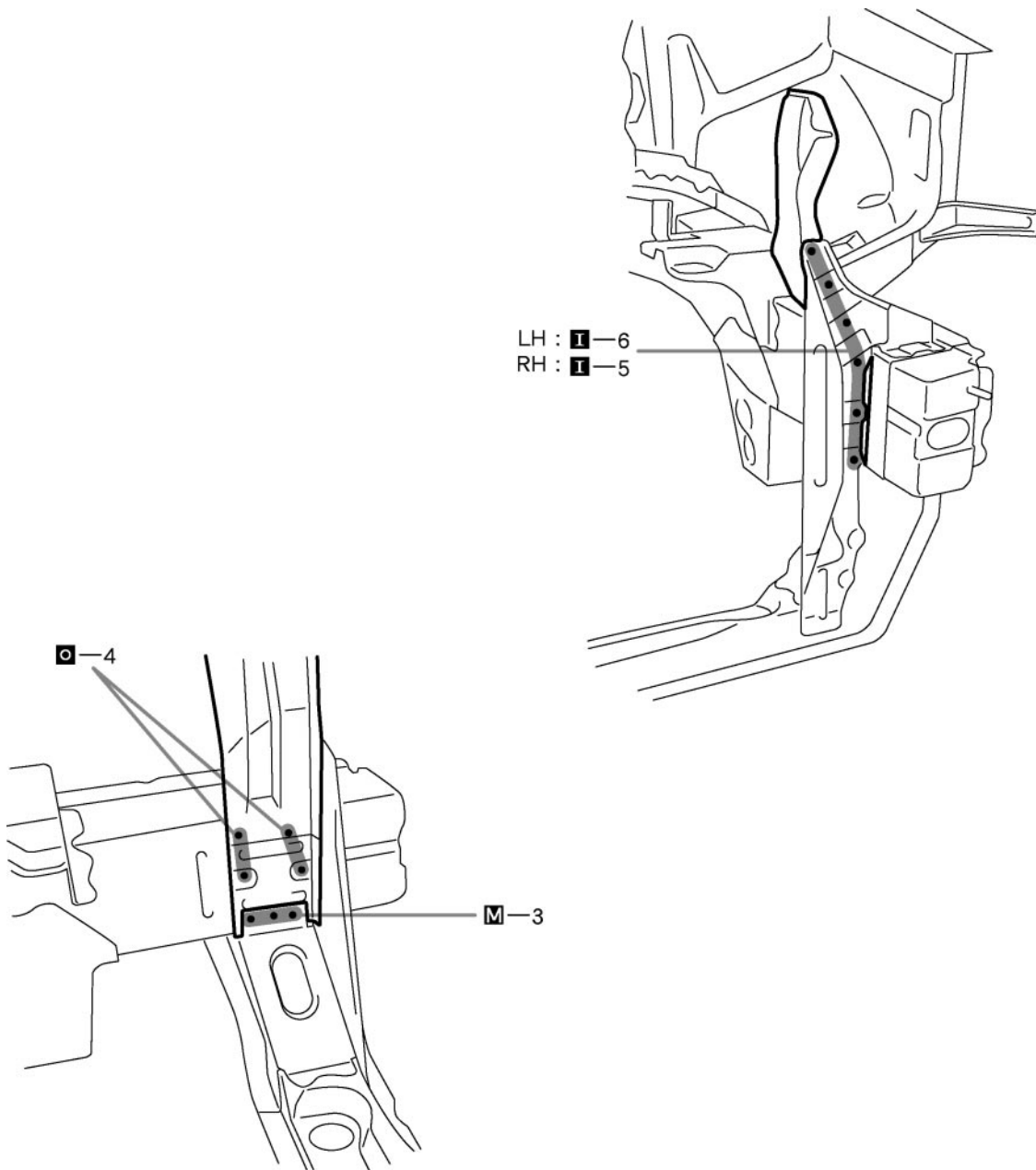
REMOVAL



F16819

INSTALLATION

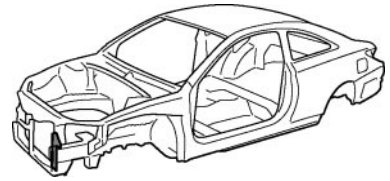
- Temporarily install the new parts and measure each part of the new parts in accordance with the body dimension diagram. (See the body dimension diagram)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



RADIATOR SIDE SUPPORT (ASSY)

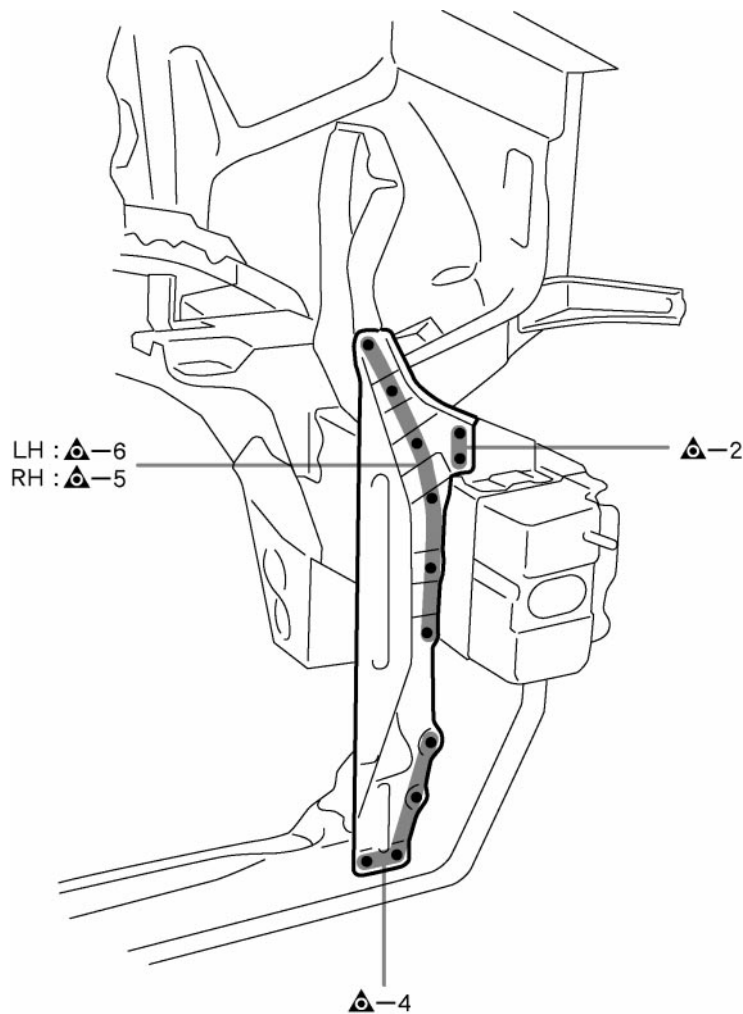
REPLACEMENT

With the radiator upper support removed.



F16821A

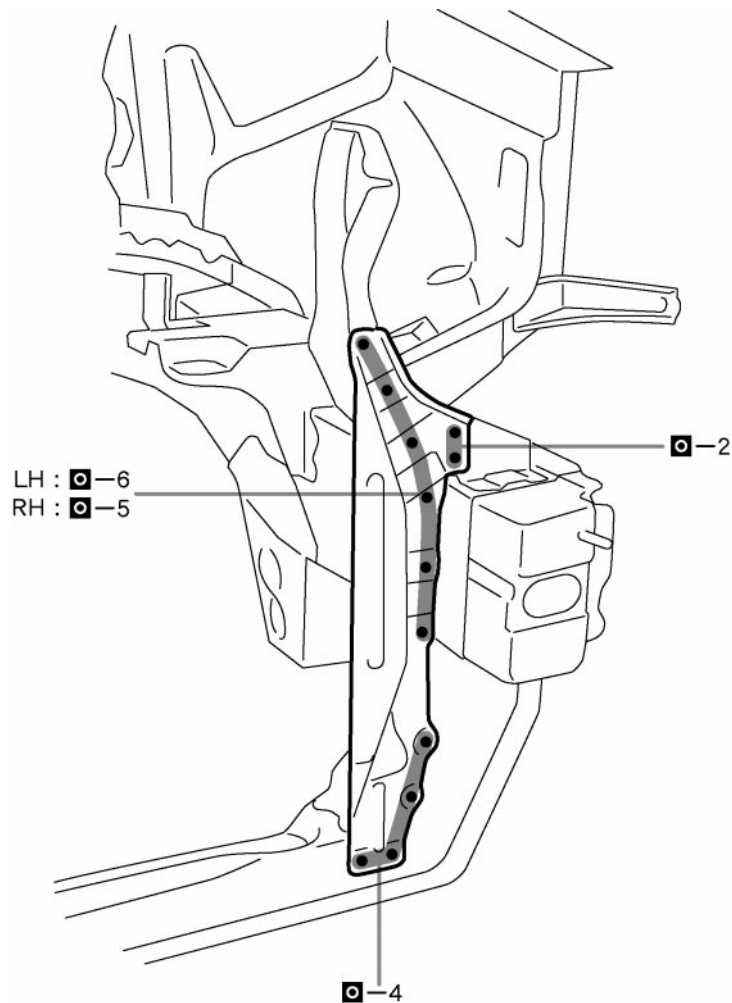
REMOVAL



F16821

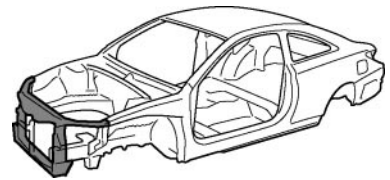
INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



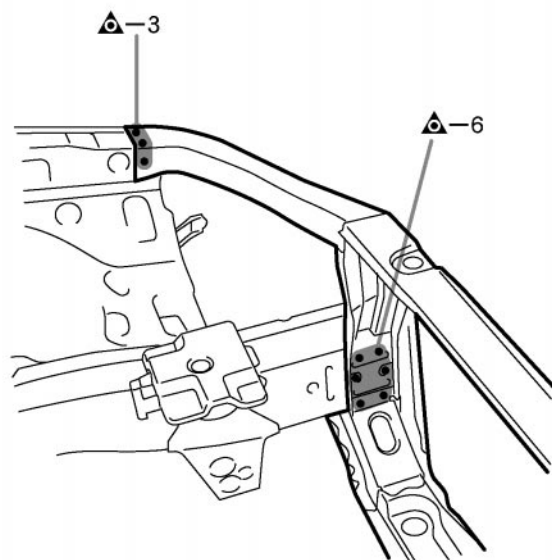
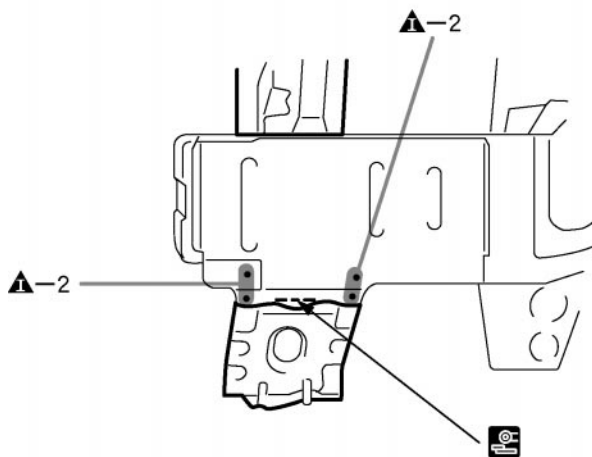
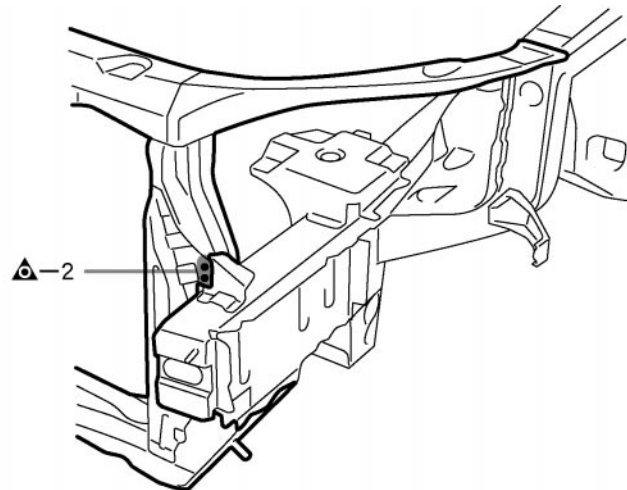
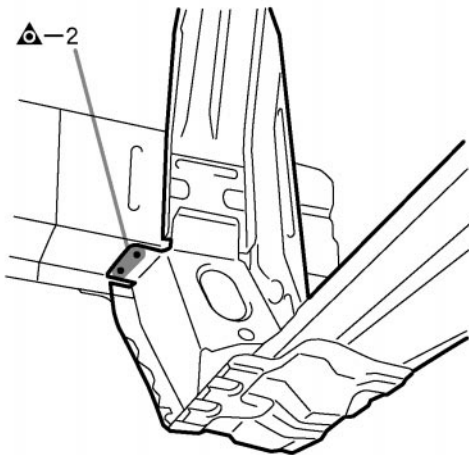
RADIATOR SUPPORT (ASSY)

REPLACEMENT



F16825A

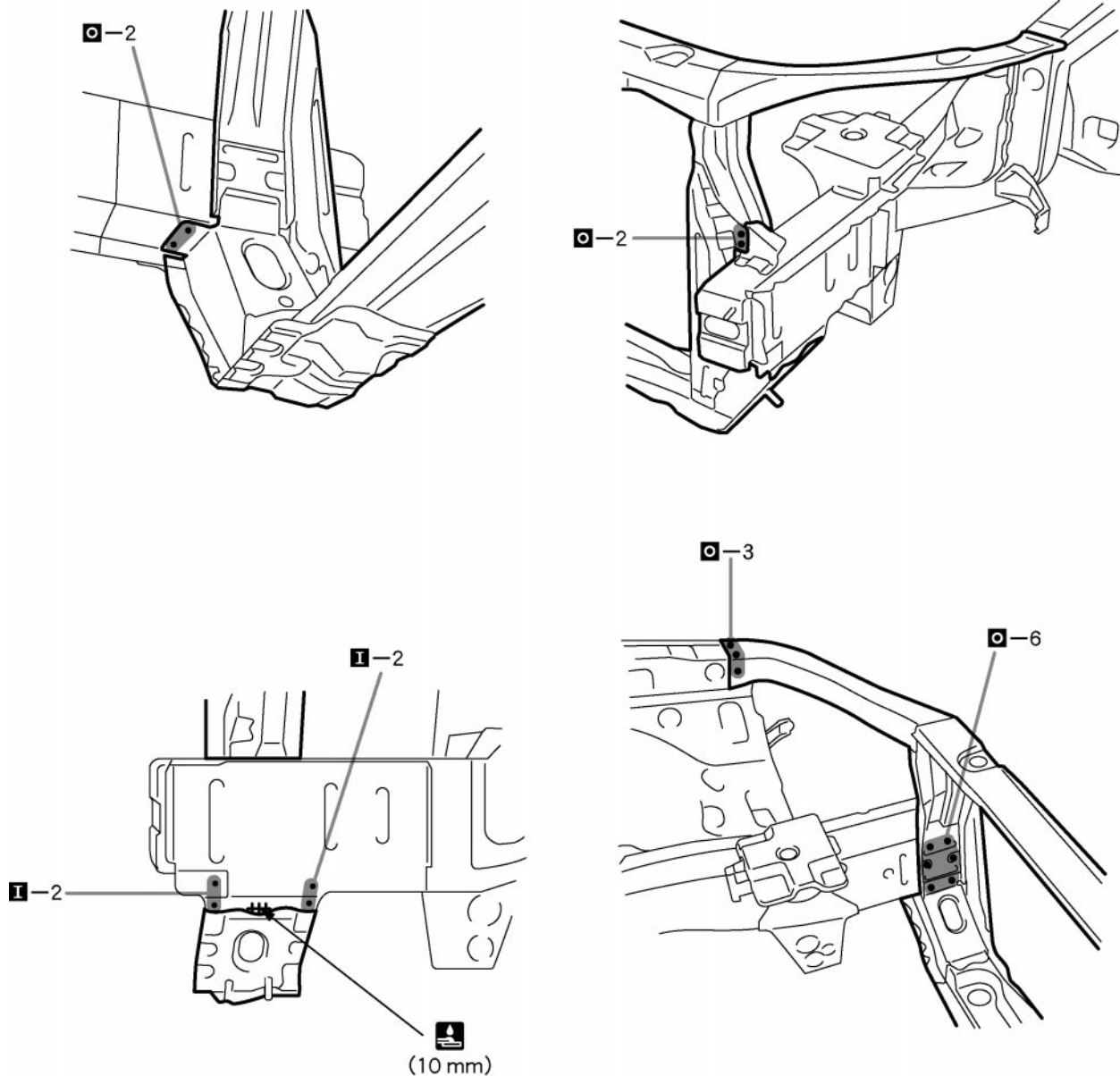
REMOVAL



F16825

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F16826

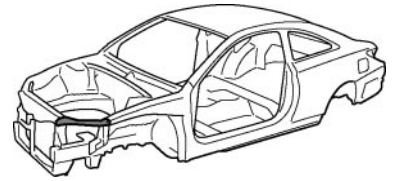
POINT

- 1 Inspect the fitting of the headlight, front fender and hood, etc., before welding, since this affects the appearance of the finish.

10 mm (0.39 in.)

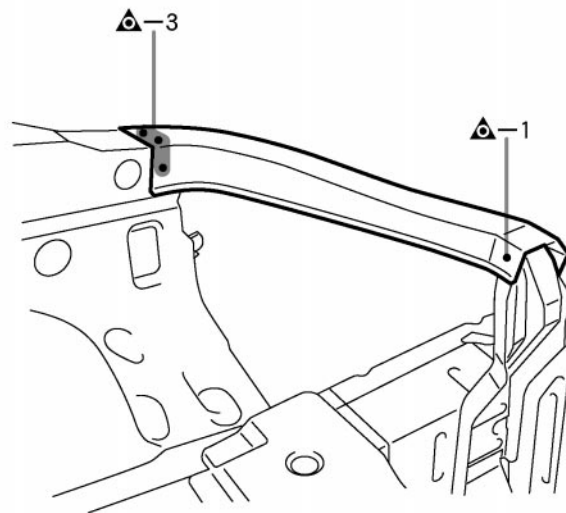
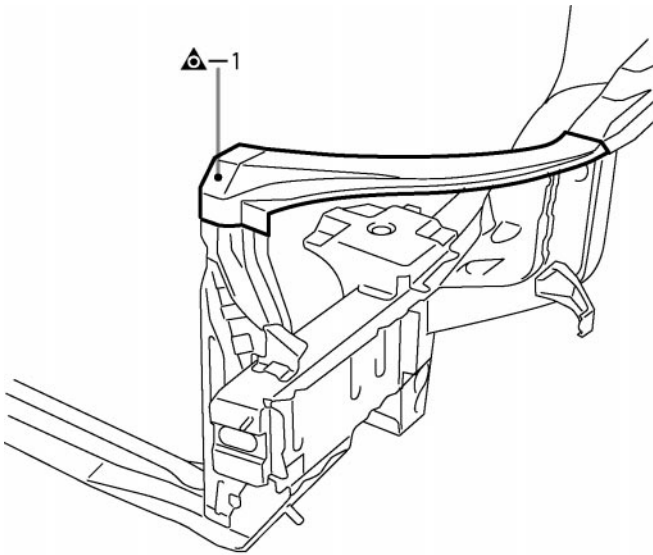
RADIATOR UPPER SUPPORT (ASSY)

REPLACEMENT



F16816A

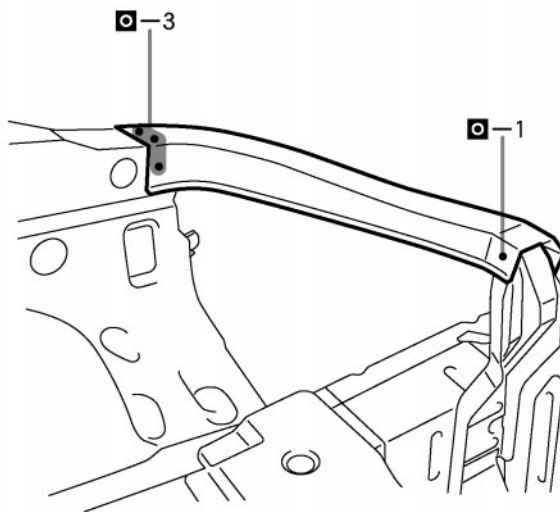
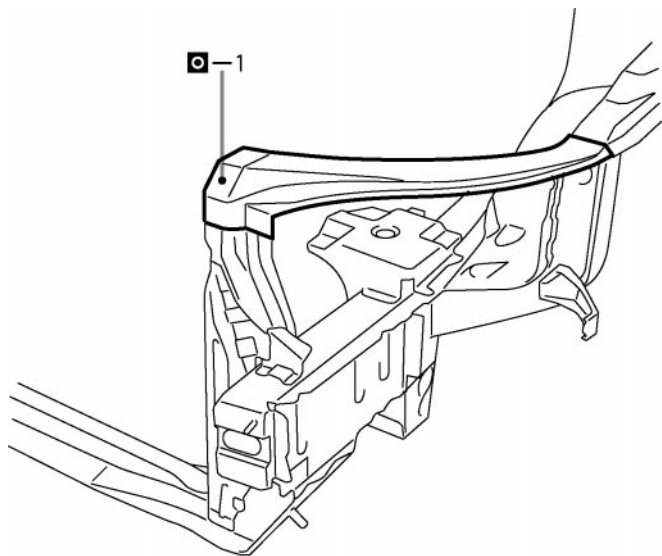
REMOVAL



F16816

INSTALLATION

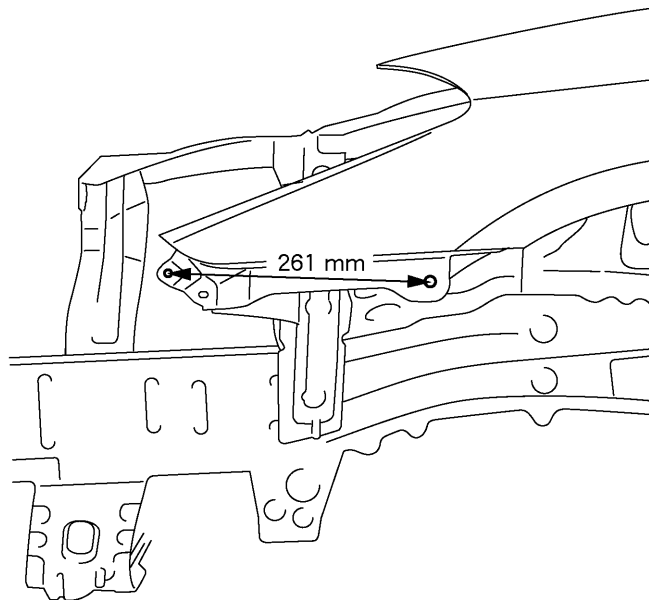
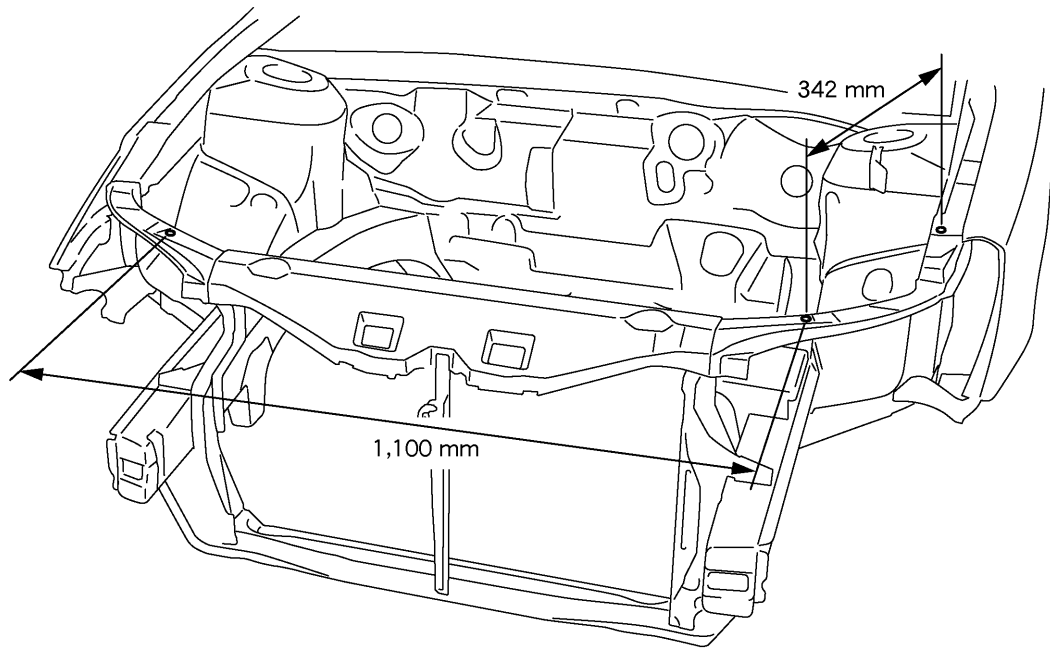
- Temporarily install the new parts and measure each part of the new parts in accordance with the body dimension diagram. (See the body dimension diagram)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F16817

POINT

- 1 Inspect the fitting of the headlight, front fender and hood, etc., before welding, since this affects the appearance of the finish.



F16818

POINT

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

261 mm (10.28 in.)

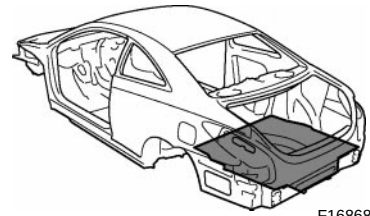
342 mm (13.46 in.)

1,100 mm (43.31 in.)

REAR FLOOR PAN (ASSY)

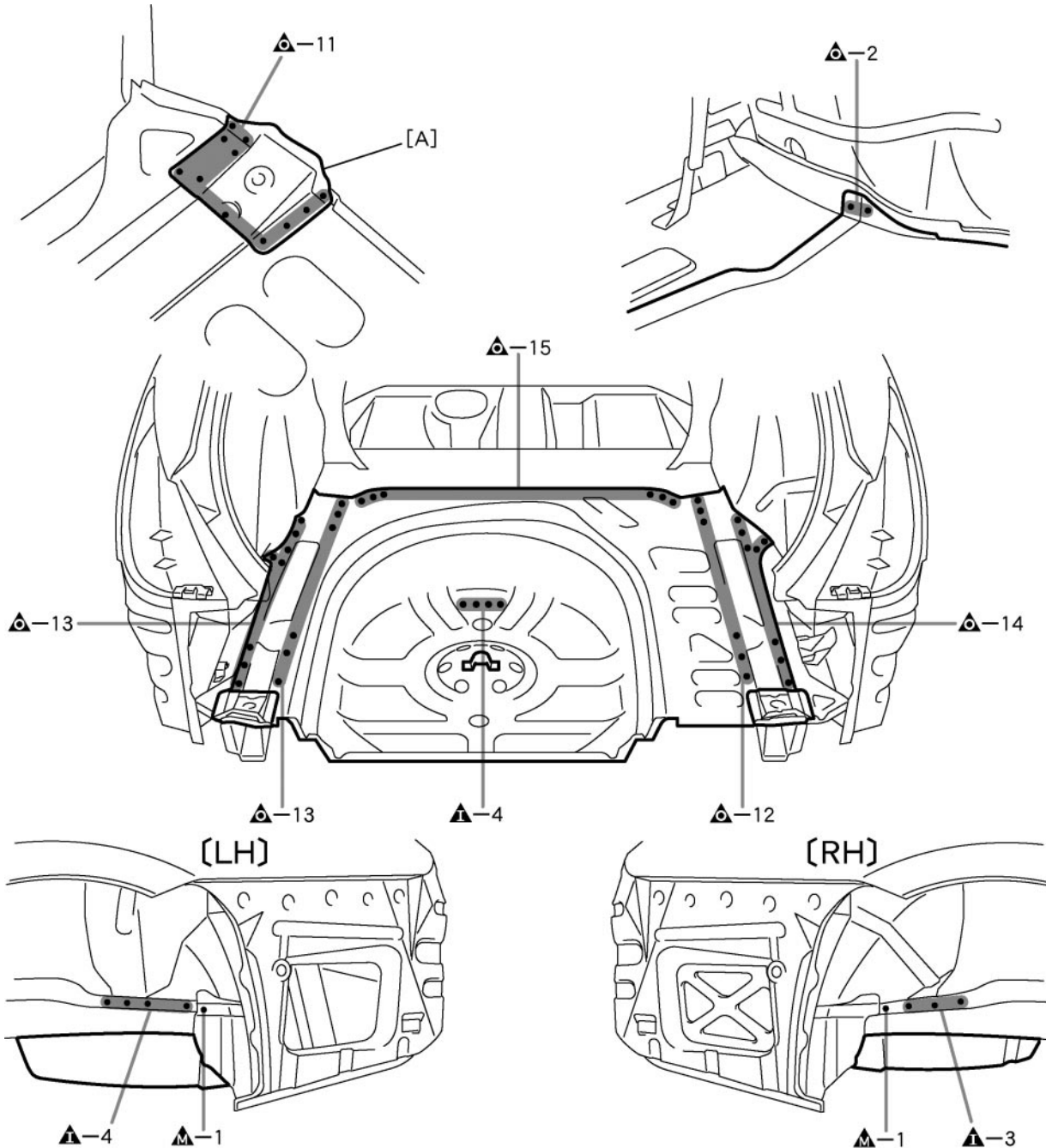
REPLACEMENT

With the rear floor No.3 crossmember removed.



F16868A

REMOVAL



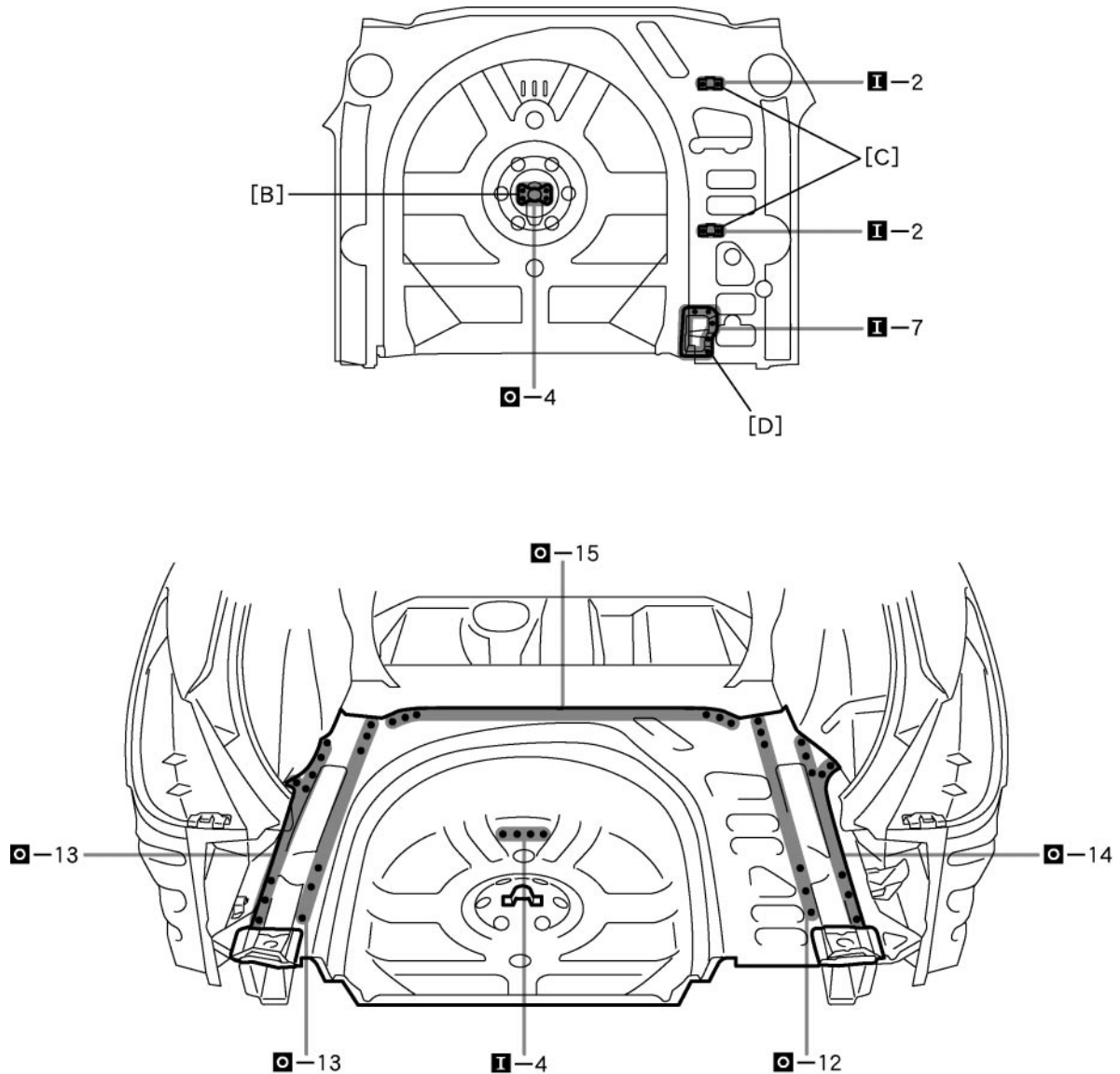
F16868

PART NAME

[A] Rear Floor Pan Reinforcement

INSTALLATION

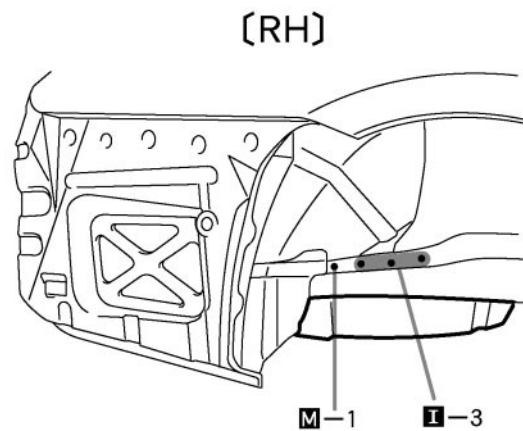
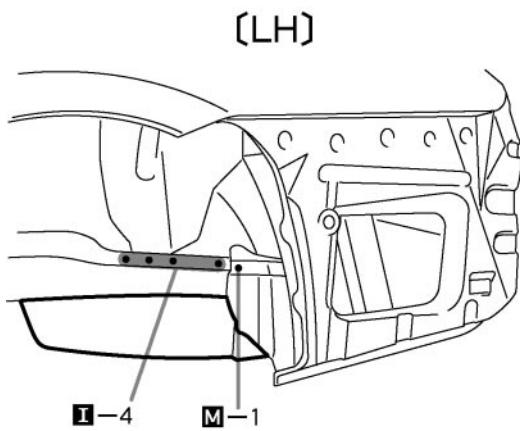
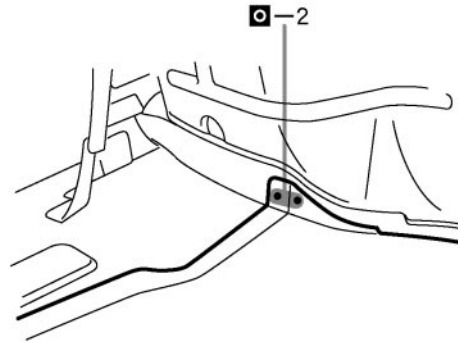
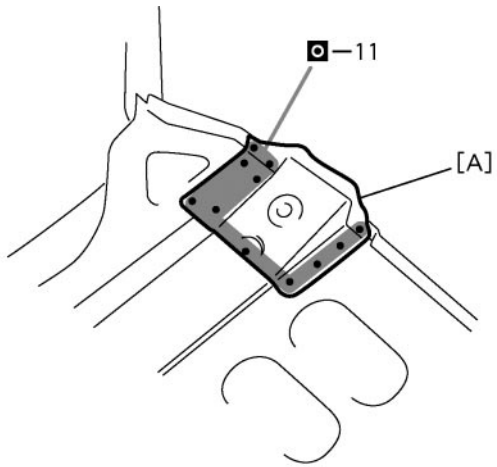
- Temporarily install the new parts and measure each part of the new parts in accordance with the body dimension diagram. (See the body dimension diagram)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F16869

PART NAME

- [B] Spare Wheel Clamp Bracket [C] Fuel Tube No.3 Bracket
 [D] Exhaust Pipe Mounting Inner Bracket



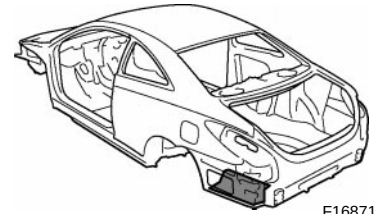
F16870

PART NAME

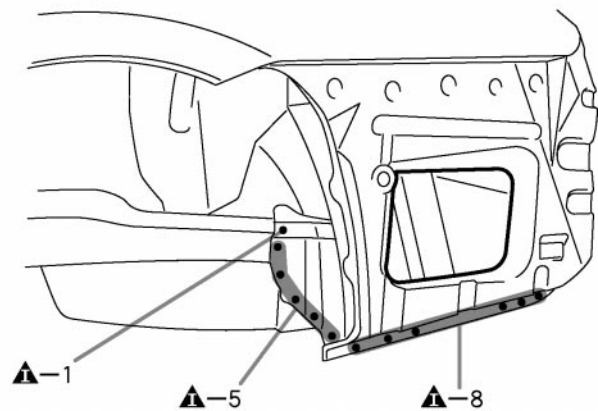
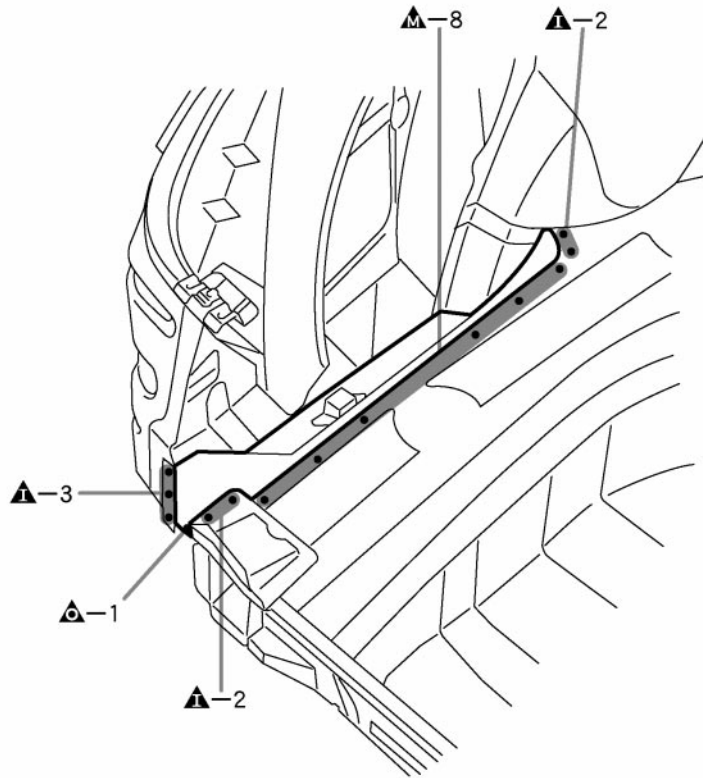
[A] Rear Floor Pan Reinforcement

REAR FLOOR SIDE PANEL (ASSY)**REPLACEMENT**

With the body lower back panel removed.

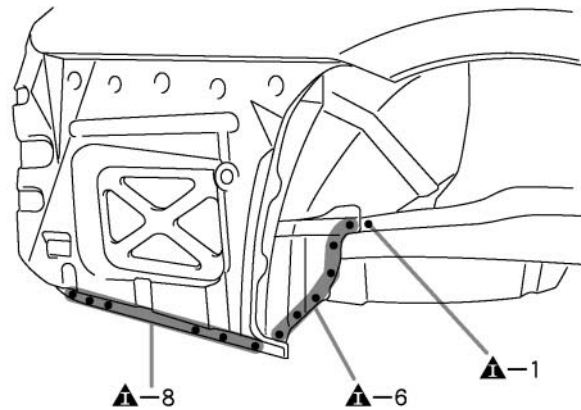
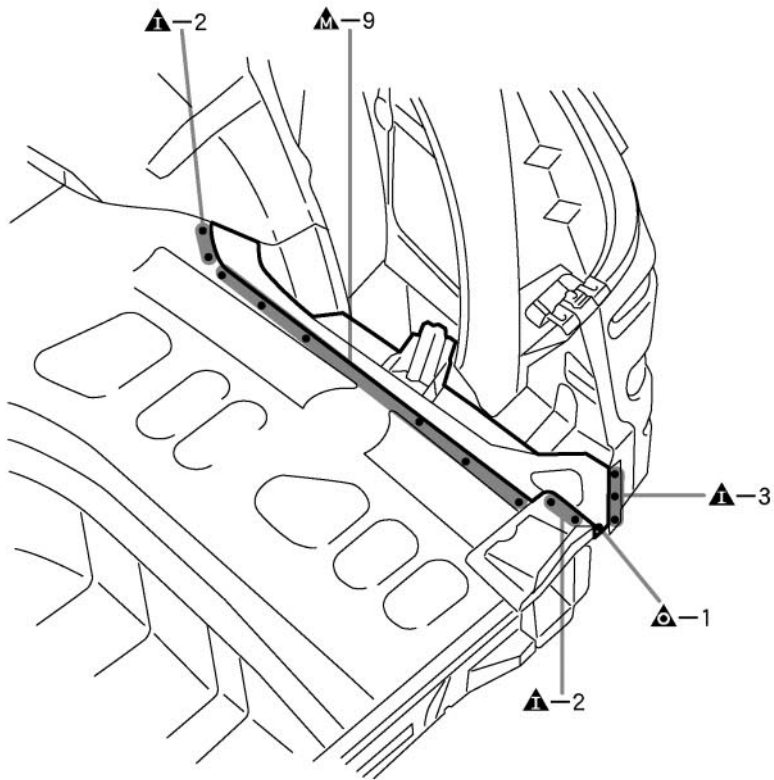


F16871A

REMOVAL**[LH]**

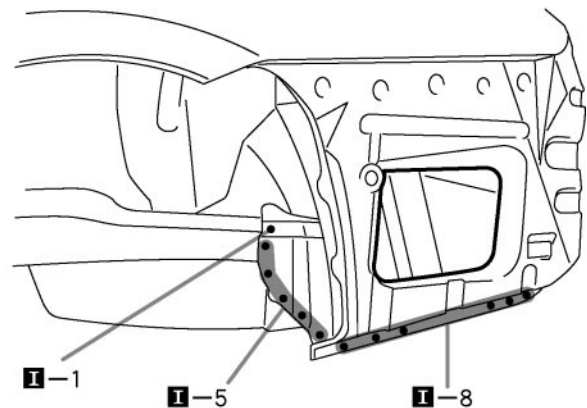
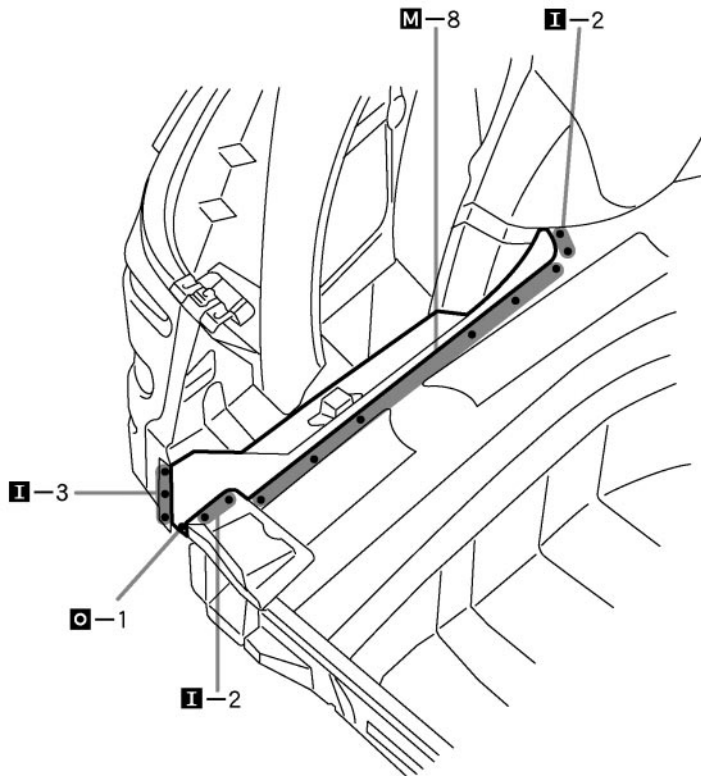
F16871

[RH]

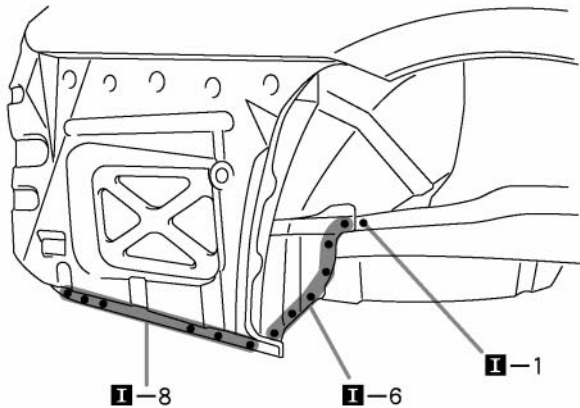
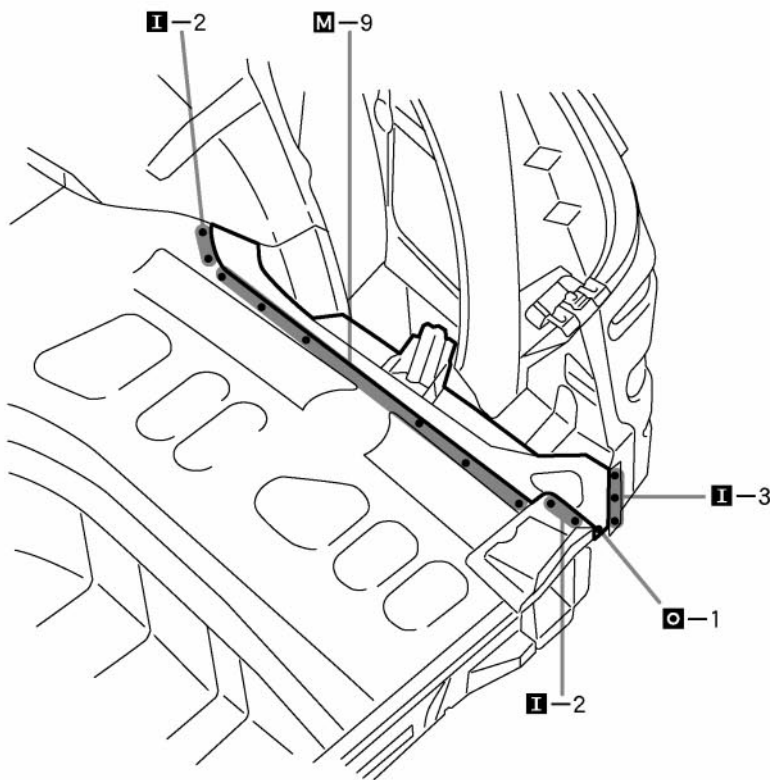


INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.

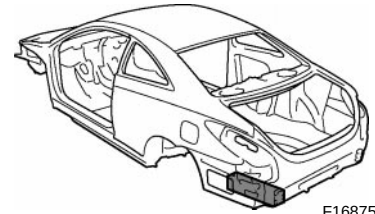
[LH]

[RH]

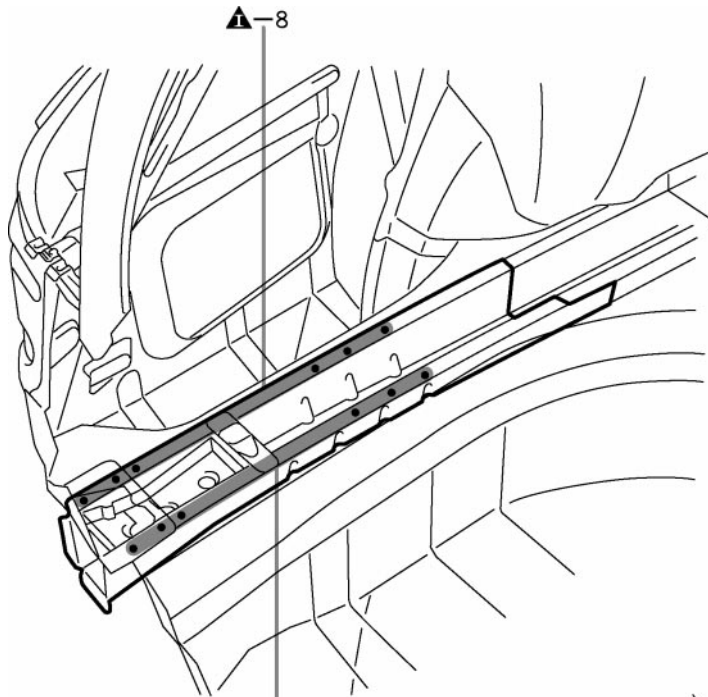


REAR FLOOR SIDE REAR MEMBER (CUT-H)**REPLACEMENT**

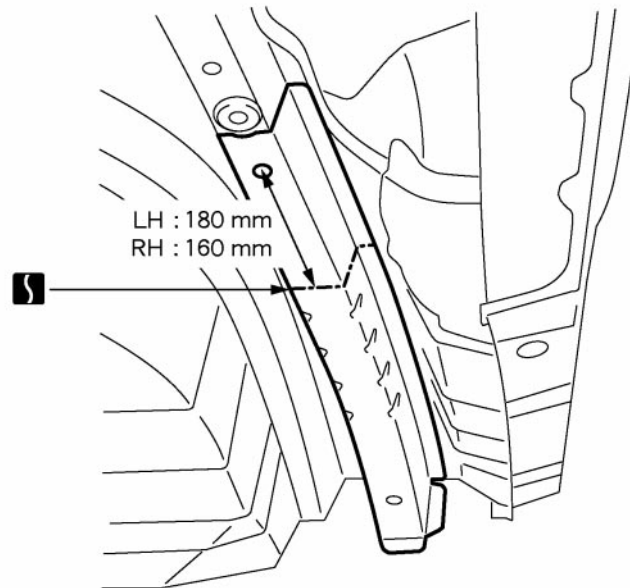
With the rear floor No.3 crossmember removed.



F16875A

REMOVAL

LH : ▲-8
RH : ▲-7



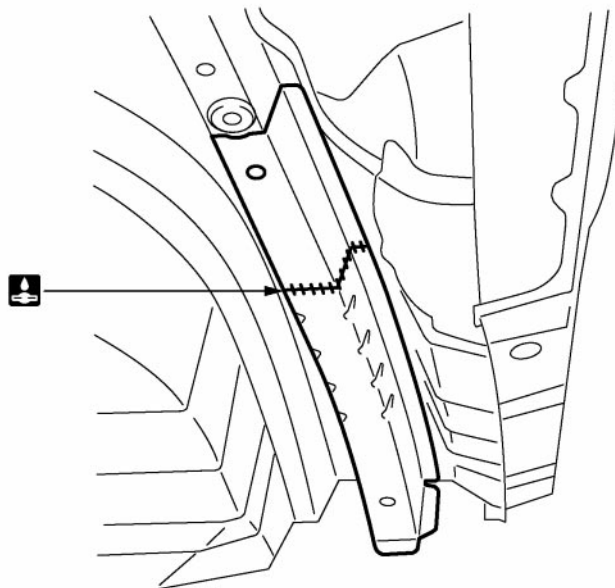
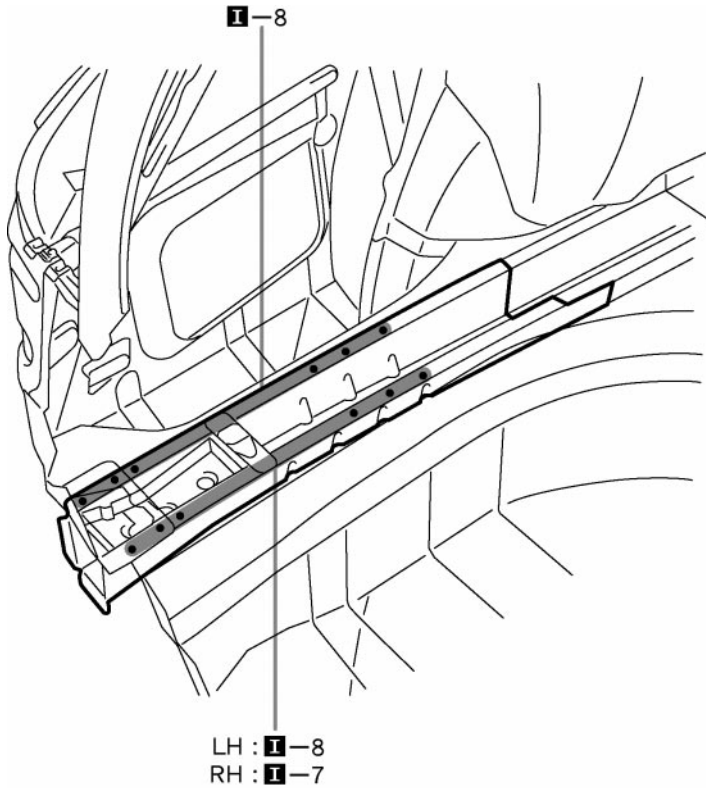
F16875

160 mm (6.30 in.)

180 mm (7.09 in.)

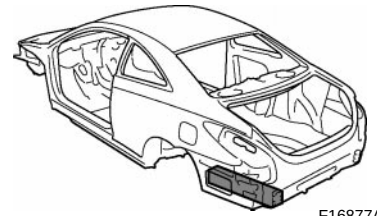
INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.

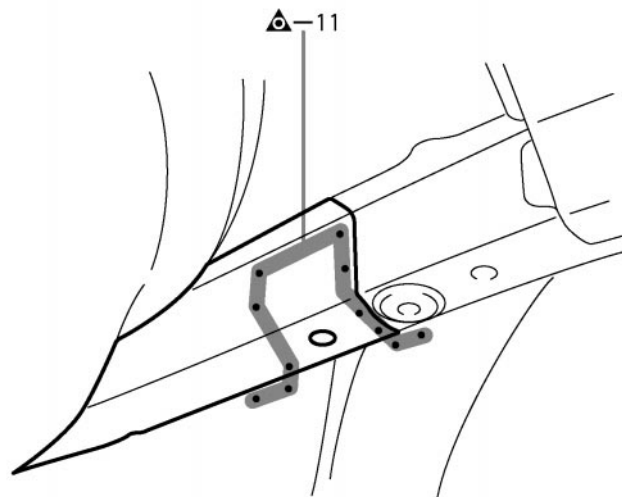
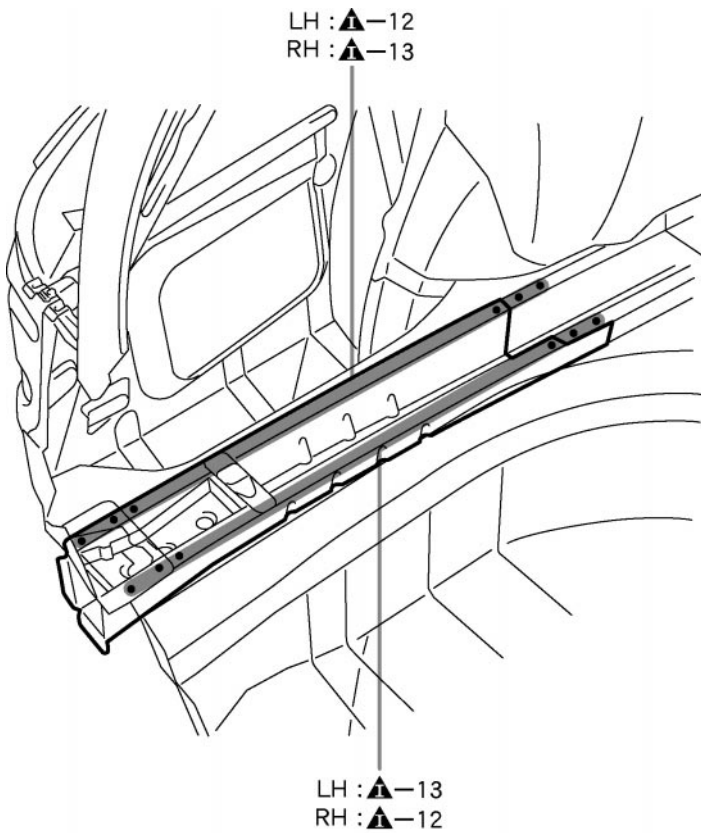


REAR FLOOR SIDE REAR MEMBER (ASSY)**REPLACEMENT**

With the rear floor No.3 crossmember removed.



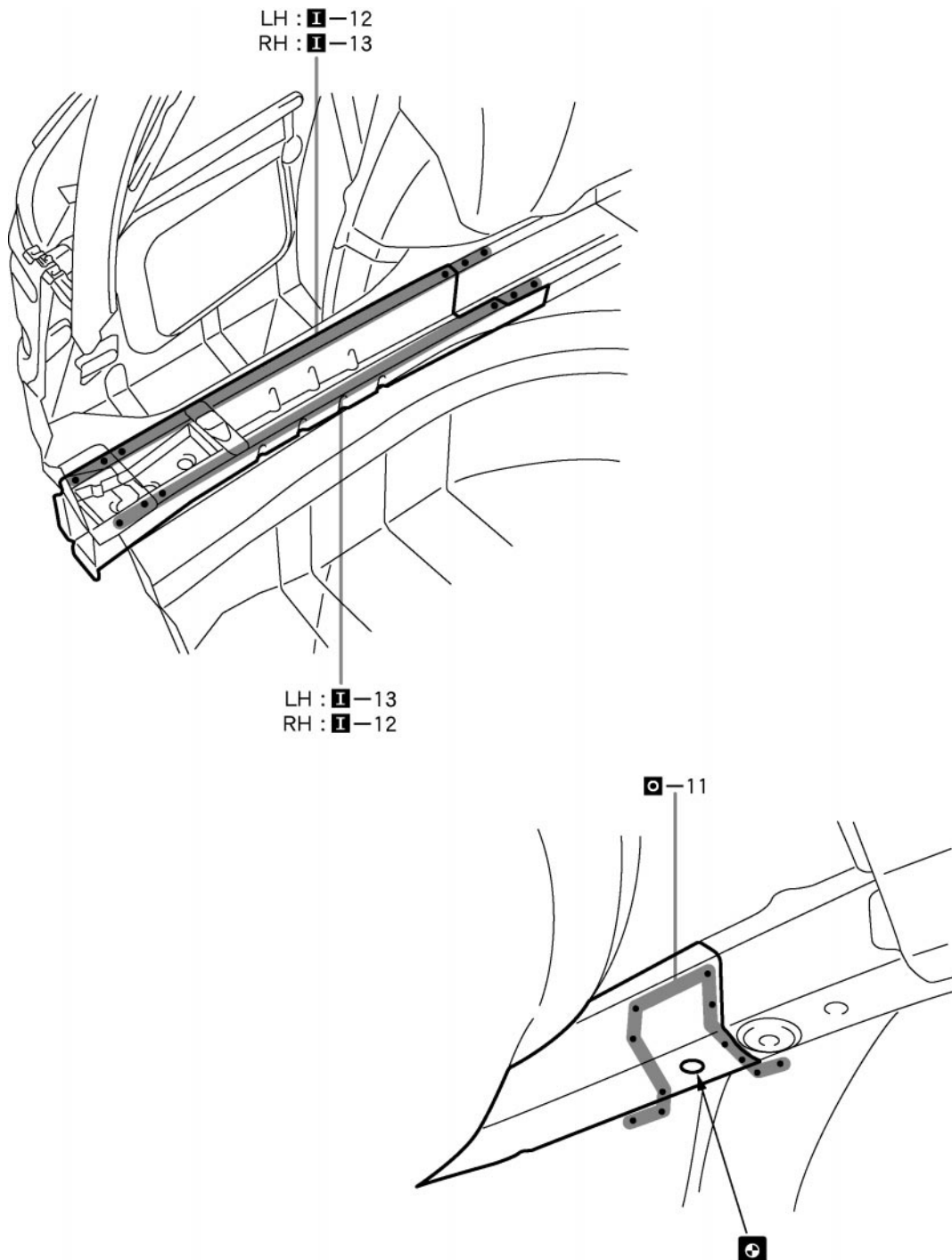
F16877A

REMOVAL

F16877

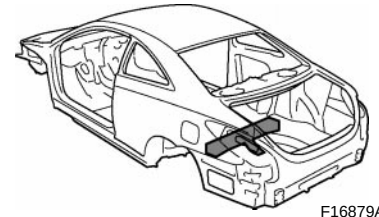
INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



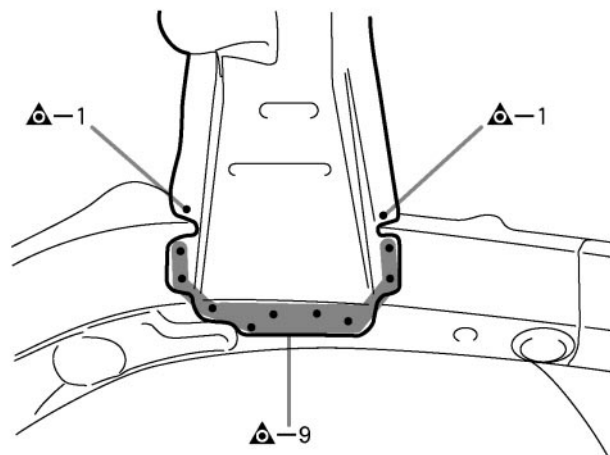
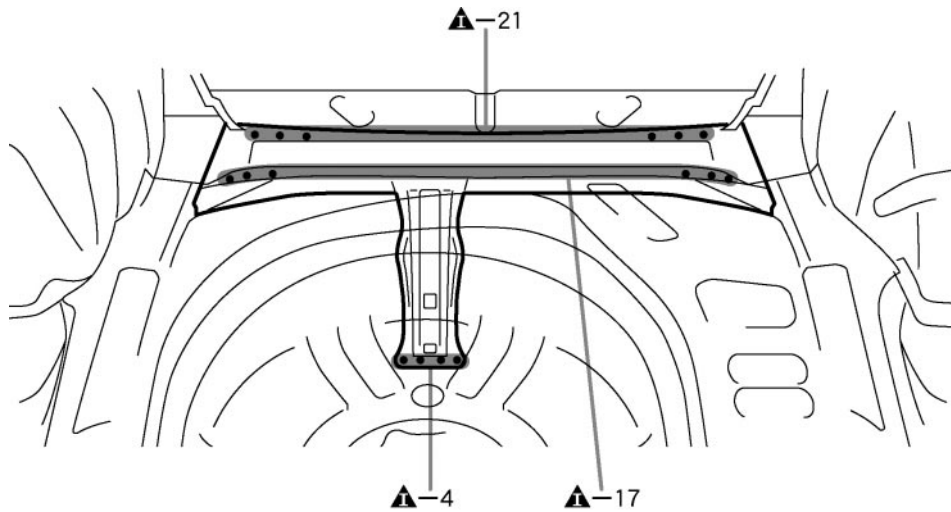
REAR FLOOR NO.2 CROSSMEMBER (ASSY)

REPLACEMENT



F16879A

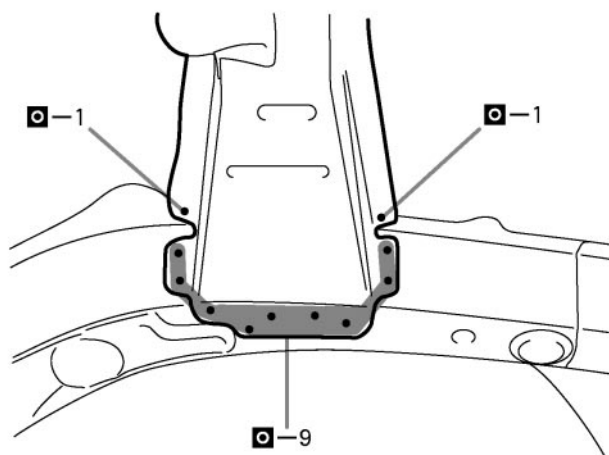
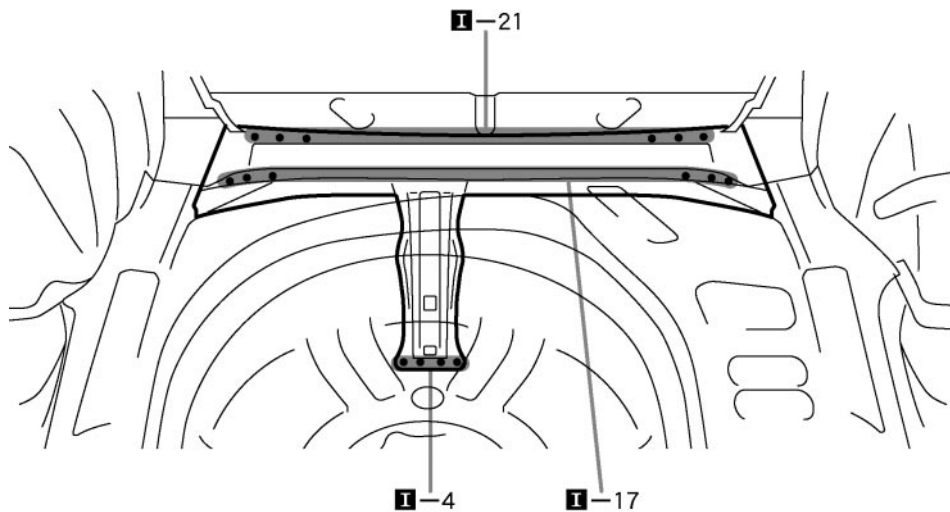
REMOVAL



F16879

INSTALLATION

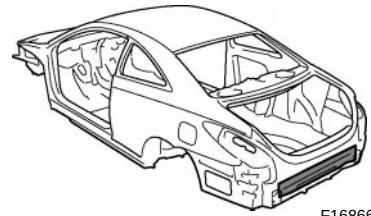
- Temporarily install the new parts and measure each part of the new parts in accordance with the body dimension diagram. (See the body dimension diagram)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



REAR FLOOR NO.3 CROSSMEMBER (ASSY)

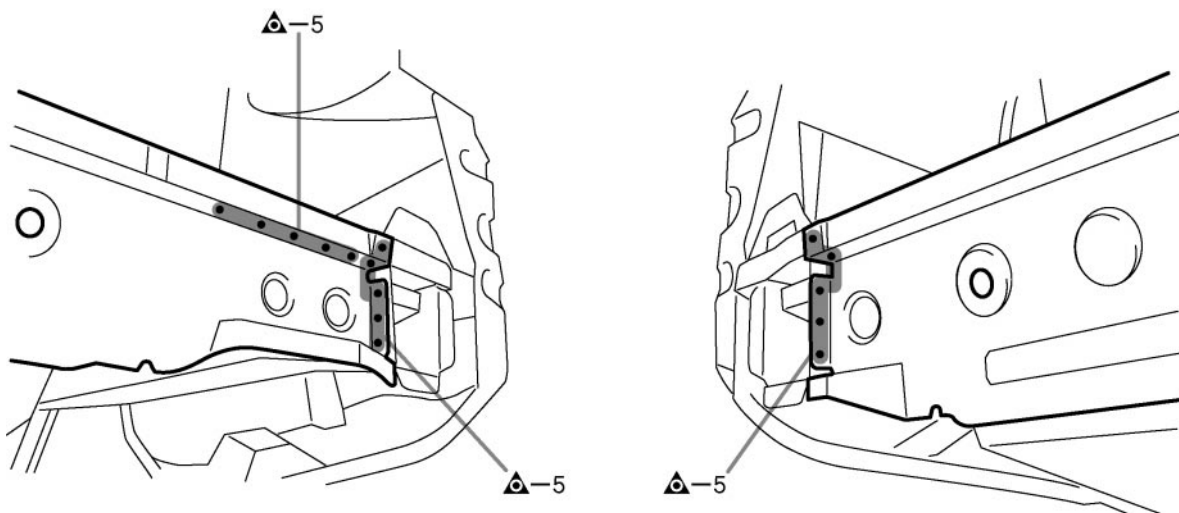
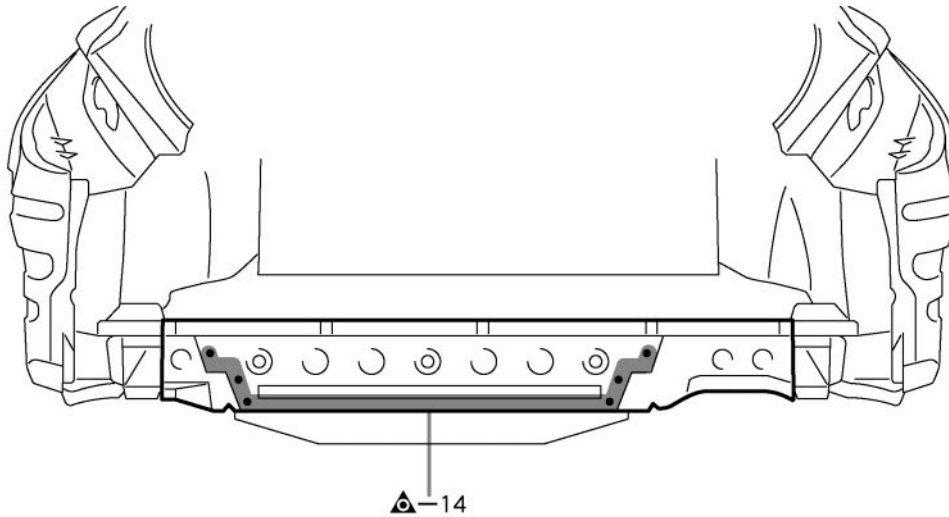
REPLACEMENT

With the body lower back panel removed.



F16866A

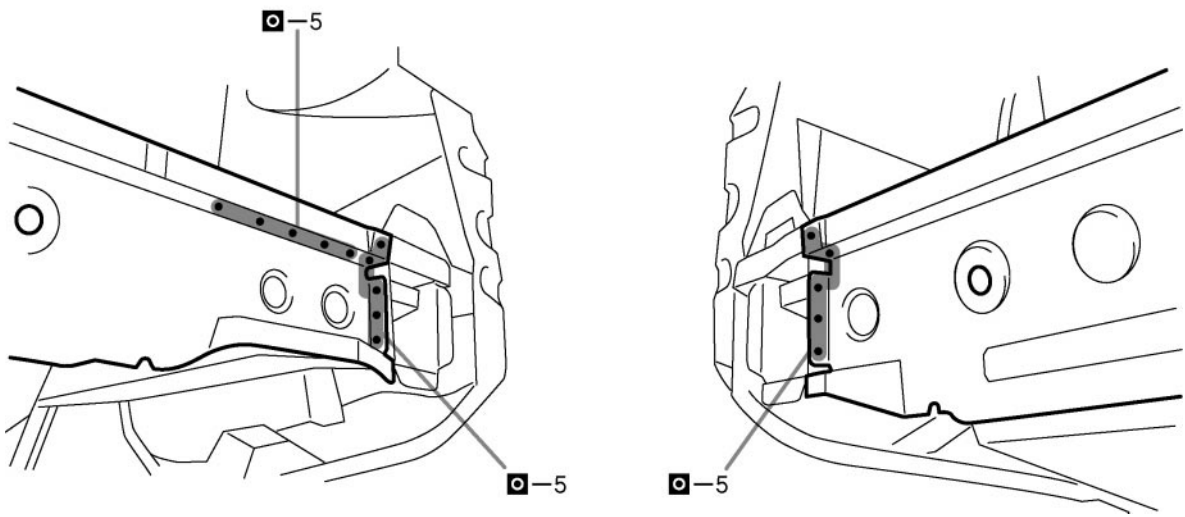
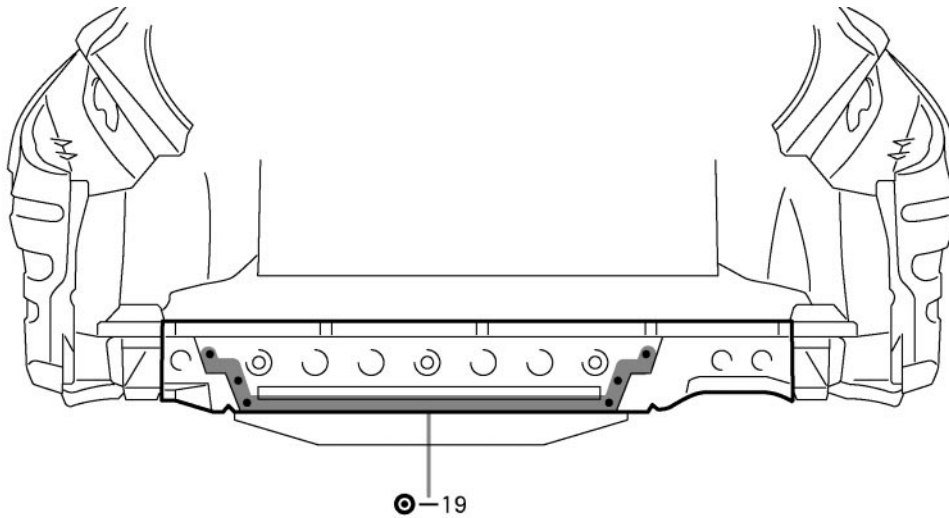
REMOVAL

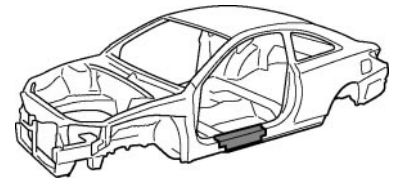


F16866

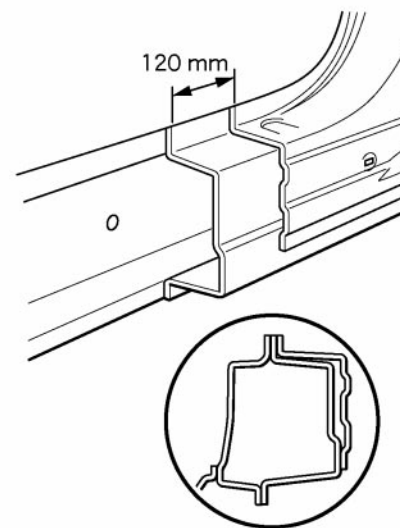
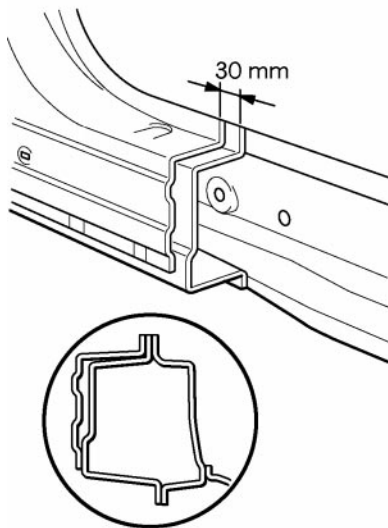
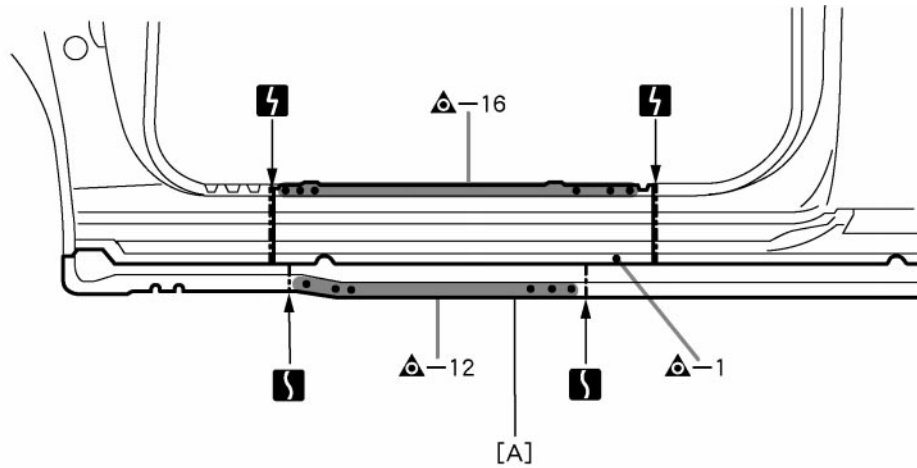
INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



ROCKER PANEL (CUT)**REPLACEMENT**

F16848A

REMOVAL

F16848

POINT

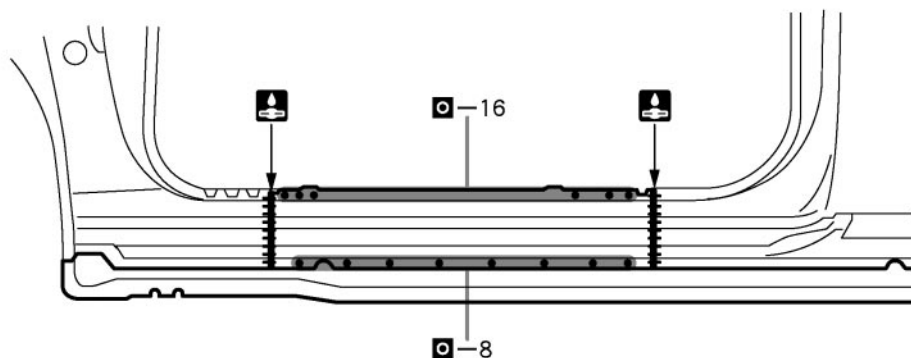
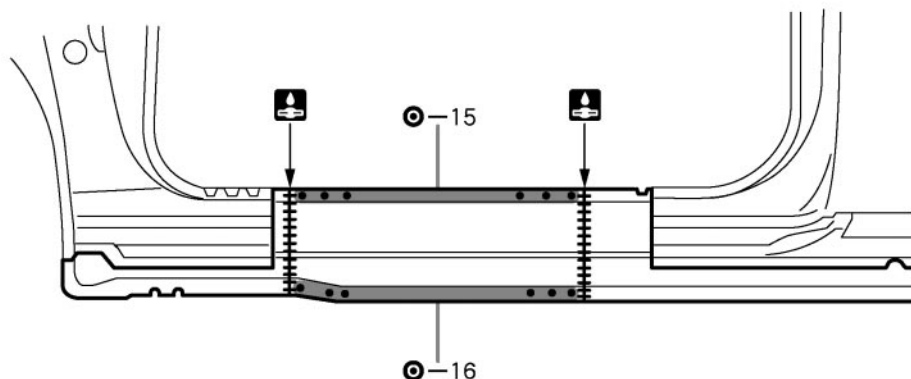
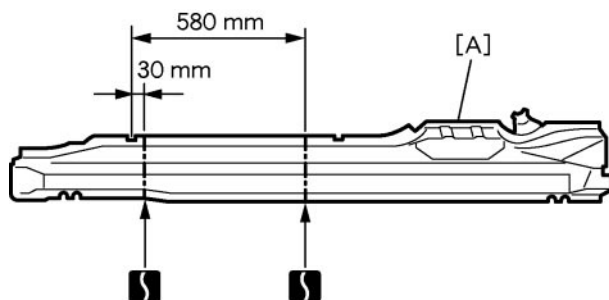
1 Remove the [A] at the same time.

PART NAME

[A] Center Body Pillar Lower Reinforce
 30 mm (1.18 in.) 120 mm (4.72 in.)

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F16849

POINT

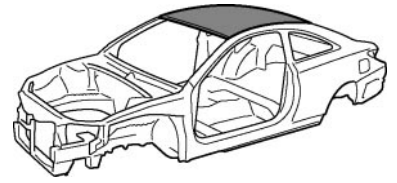
- 1 Inspect the fitting of the front door, etc., before welding, since this affects the appearance of the finish.

PART NAME

[A] Center Body Pillar Lower Reinforce
 30 mm (1.18 in.) 580 mm (22.83 in.)

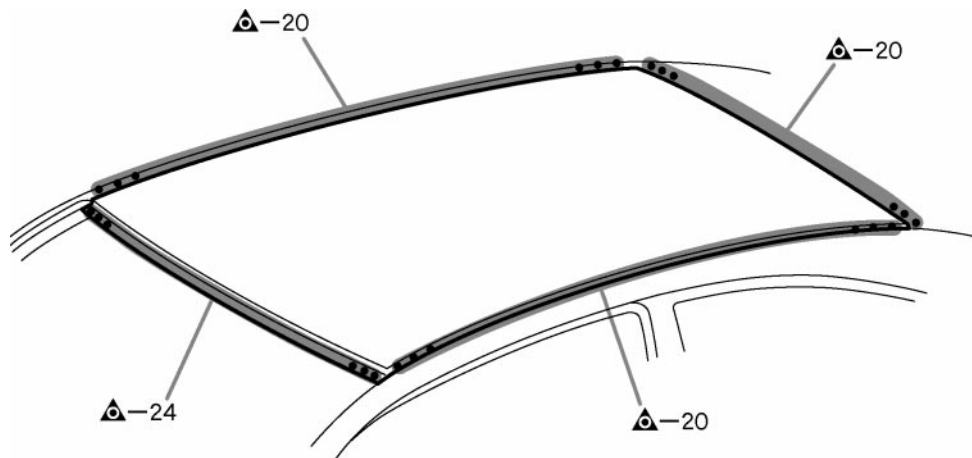
ROOF PANEL (ASSY): w/o Moon Roof

REPLACEMENT



F16881A

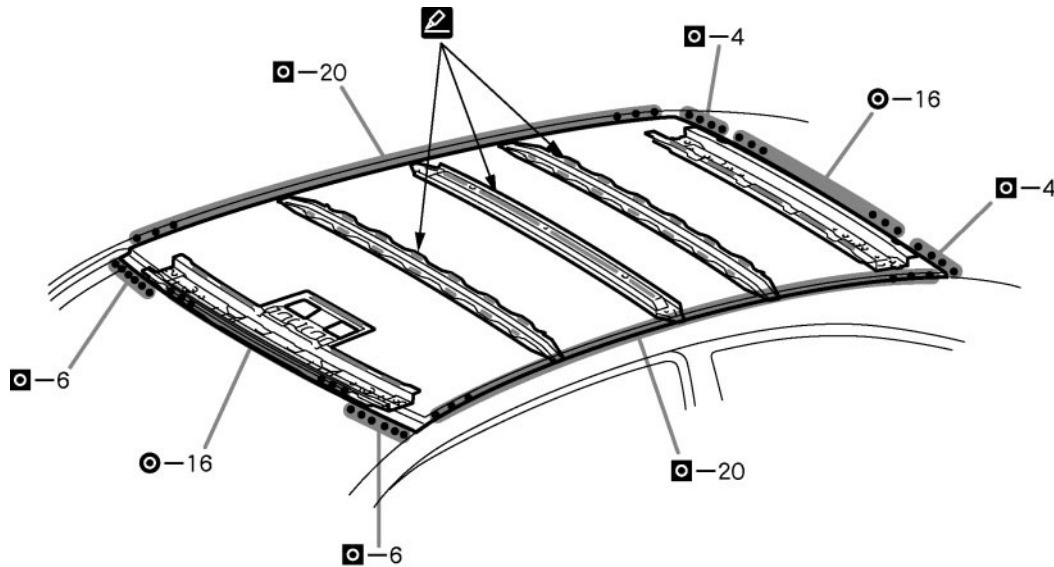
REMOVAL



F16881

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F16882

POINT

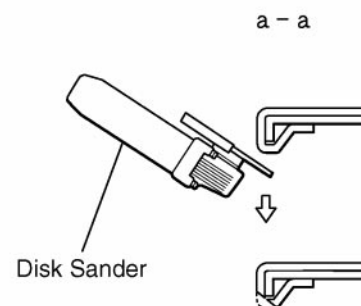
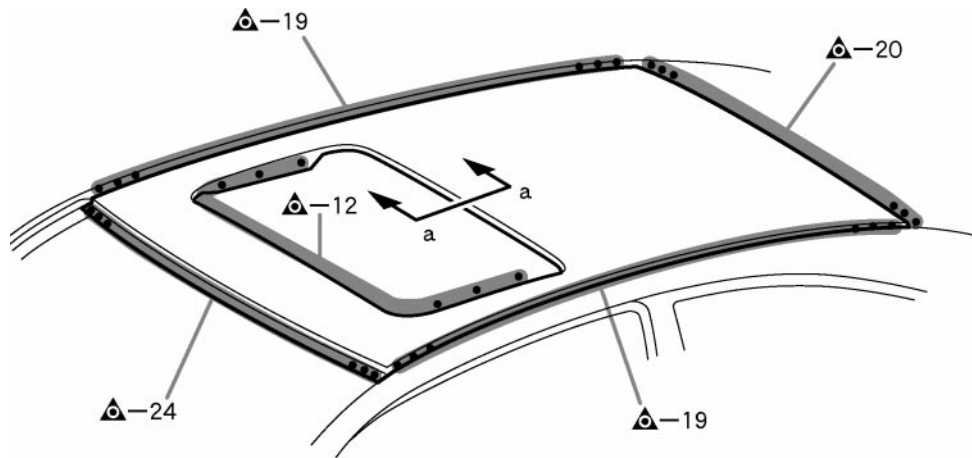
- 1 Before temporarily installing the new parts, apply body sealer to the windshield header panel, roof panel reinforcement and back window frame.

HINT:

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

ROOF PANEL (ASSY): w/ Moon Roof**REPLACEMENT**

F16883A

REMOVAL

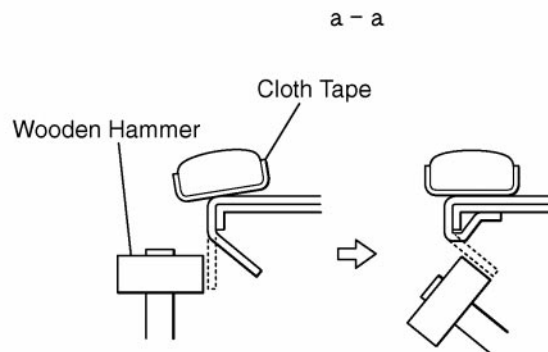
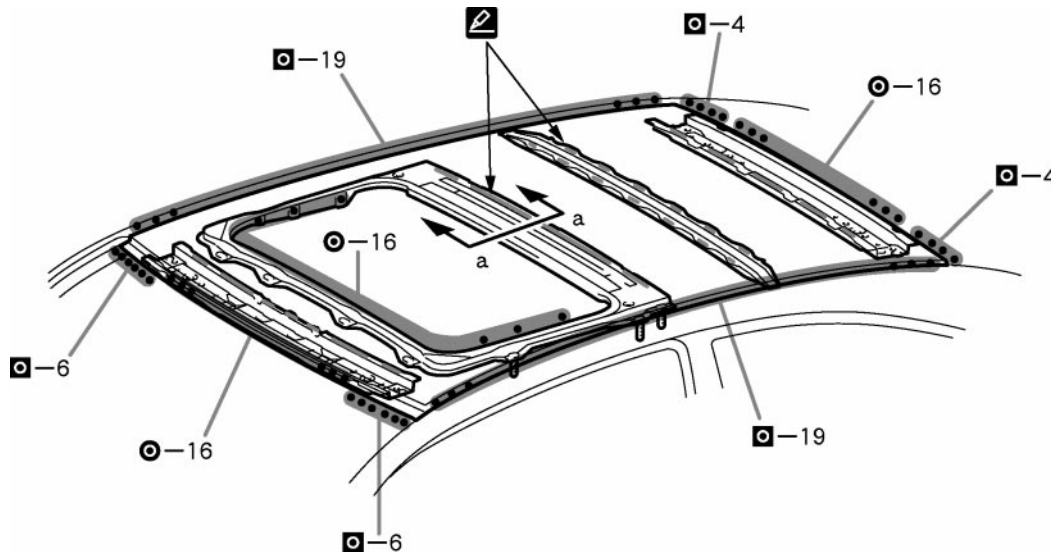
F16883

POINT

- 1 If reusing the roof panel reinforcement, trim the hemming location using a disc sander, etc.

INSTALLATION

- 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)
- Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- After welding, apply the polyurethane foam to the corresponding parts.
- After welding, apply body sealer and under-coating to the corresponding parts.
- After applying the top coat layer, apply anti-rust agent to the inside of the necked section structural weld spots.



F16884

POINT

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

HINT:

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

- 2 Bend the flange hem with a wooden hammer and dolly.

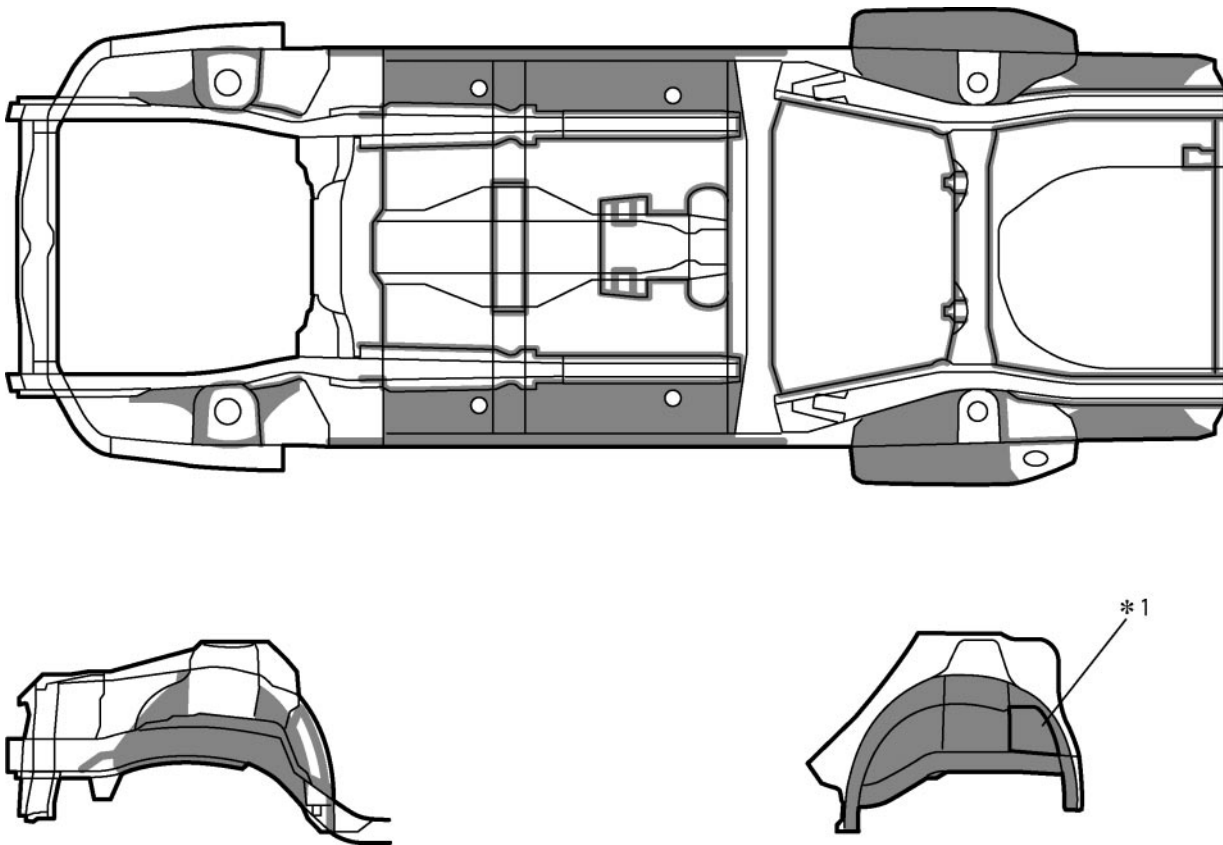
HINT:

- 1) Perform hemming three steps, being careful not to warp the panel.

BODY PANEL UNDERCOATING AREAS

HINT:

- 1) First wipe off any dirt, grease or oil with a rag soaked in a grease, wax and silicone remover.
- 2) Cover the surrounding areas with masking paper to avoid coating unnecessary areas. If other areas are accidentally coated, wipe off the coating immediately.
- 3) Apply the first coating of undercoat to all welded areas and panel joints, then apply a second coat over the entire area.
- 4) Do not coat parts which become hot, such as the tailpipe, or moving parts, such as the propeller shaft.
- 5) Besides the locations described below, apply undercoating to all weld points under the body to insure corrosion prevention.
- 6) Be sure to seal the edge of the flange of the member and bracket with undercoating.
- 7) If undercoat is damaged by peeling, cracks, etc., be sure to repair as necessary.
- 8) Before the undercoat apply sealer allowing rust prevention to be attained.



F16806

POINT

- 1 *1: RH Only

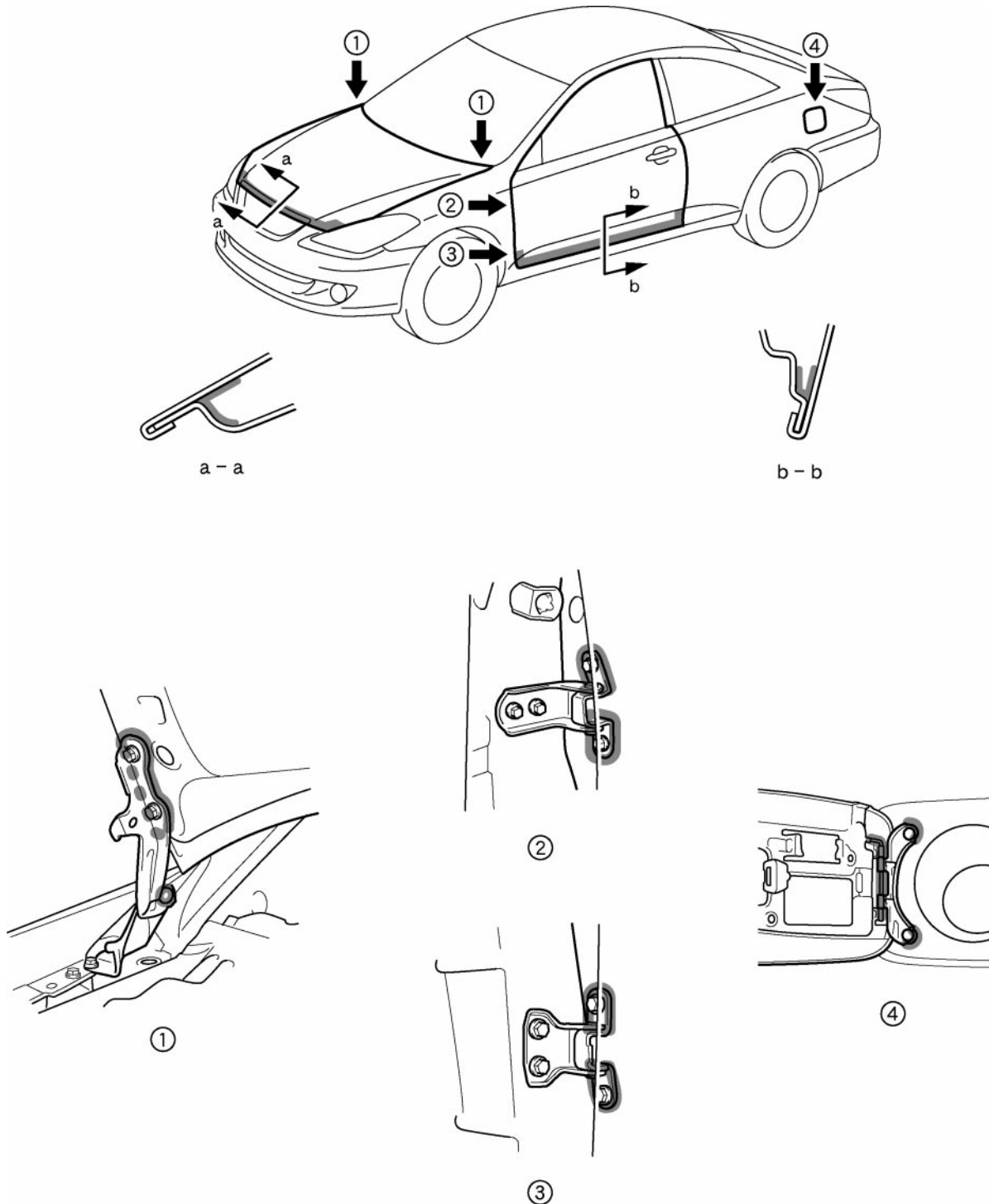
REFERENCE

Referring to the notes above, undercoating should be applied according to the specifications for your country.

BODY PANEL ANTI-RUST AGENT (WAX) APPLICATION AREAS

HINT:

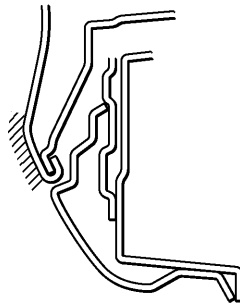
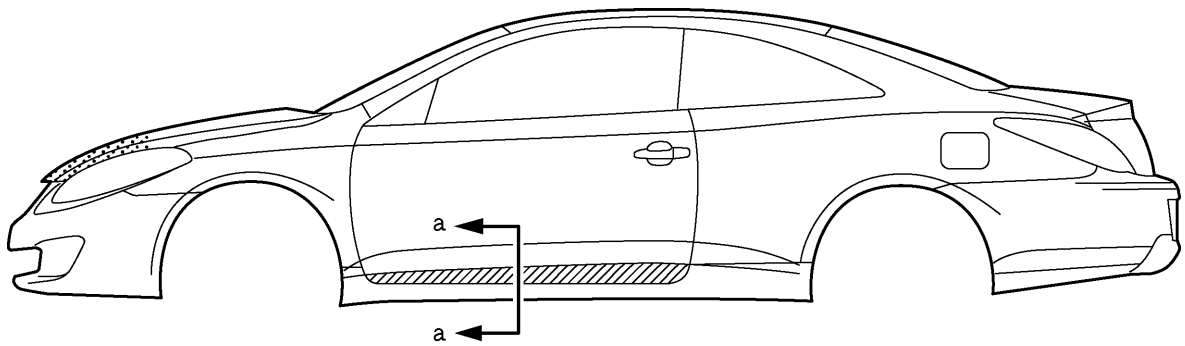
- 1) Whenever adjusting the doors and hoods, apply anti-rust agent (wax) around the hinges.
- 2) Even if partially repairing a part, apply anti-rust agent (wax) over the entire application area of the part.
- 3) Wipe off the anti-rust agent immediately with a rag soaked in a grease, wax and silicone remover, if accidentally applied to other areas.



BODY PANEL ANTI-CHIPPING PAINT APPLICATION AREAS

HINT:

- 1) Anti-chipping paint should be applied to some areas before the second coat and to others after the top coat.
- 2) If other areas are accidentally coated, wipe off the paint immediately with a rag soaked in grease, wax and silicone remover.



a - a

F16810



URETHANE



SOFT-CHIP PRIMER

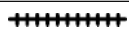
—

MEMO

BODY PANEL SEALING AREAS

HINT:

- 1) Prior to applying body sealer, clean the area with a rag soaked in grease, wax and silicone remover.
- 2) If weld-through primer was used, first wipe off any excess and coat with anti-corrosion primer before applying body sealer.
- 3) Wipe off excess body sealer with a rag soaked in a grease, wax and silicone remover.
- 4) If body sealer is damaged by peeling, cracks, etc., be sure to repair as necessary.

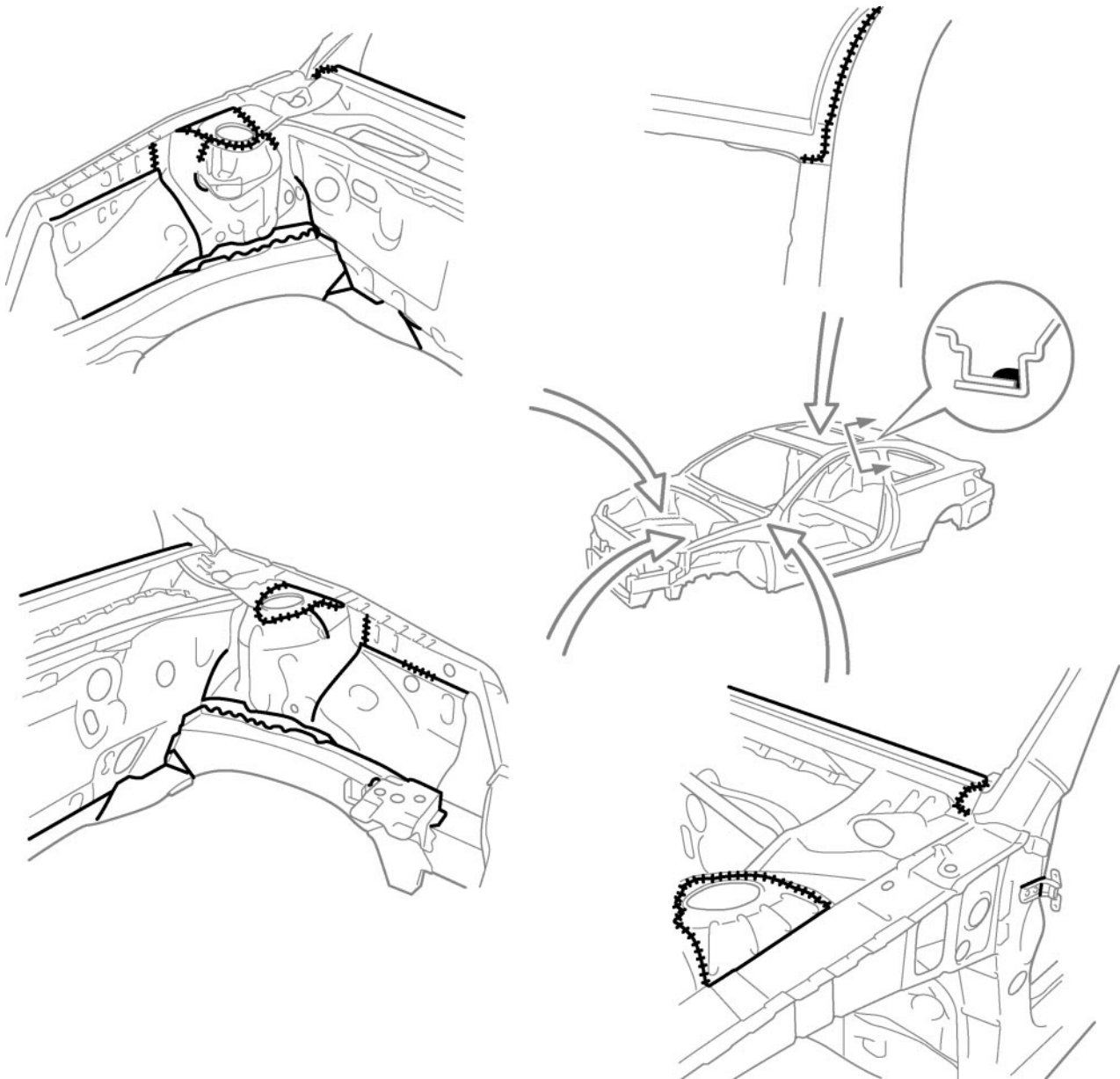


Flat Finishing

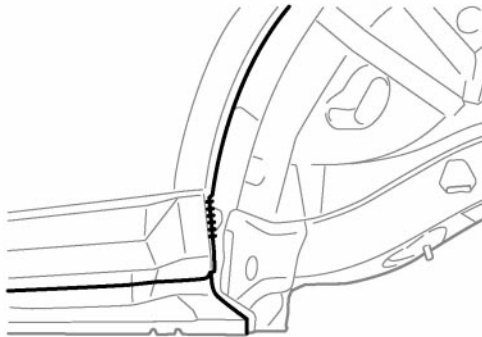
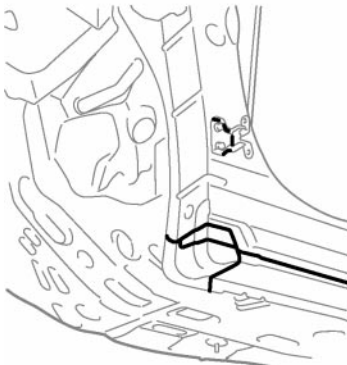
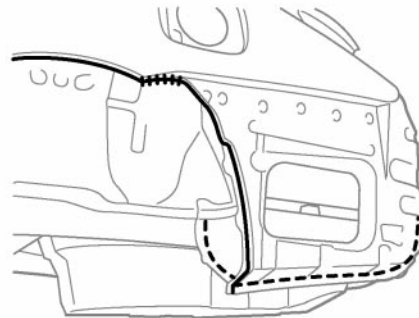
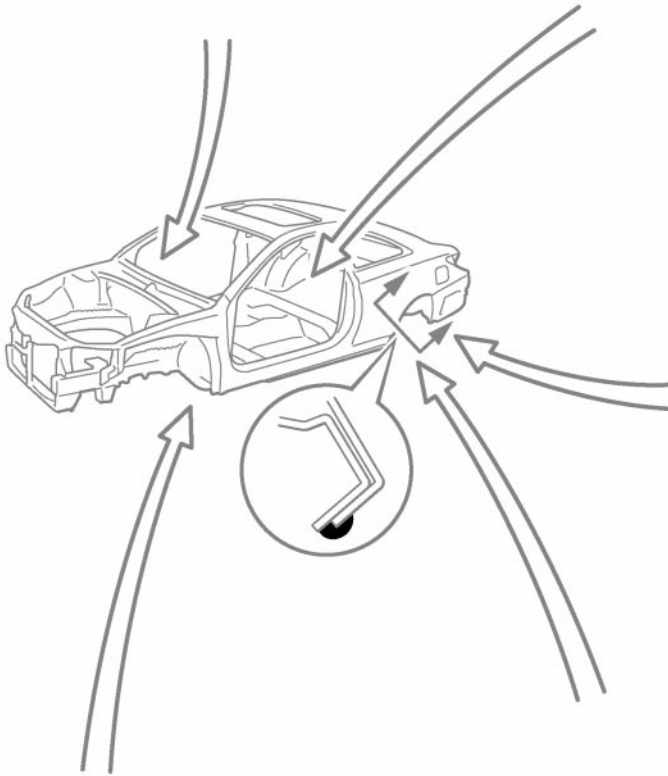
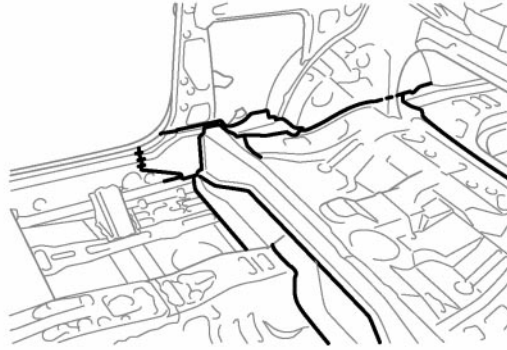
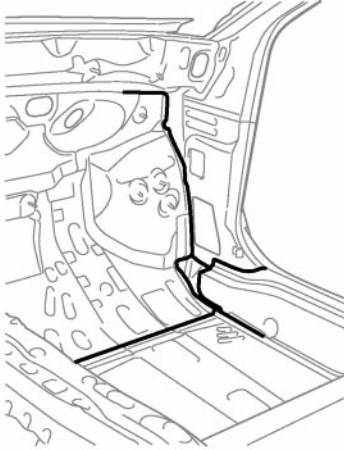


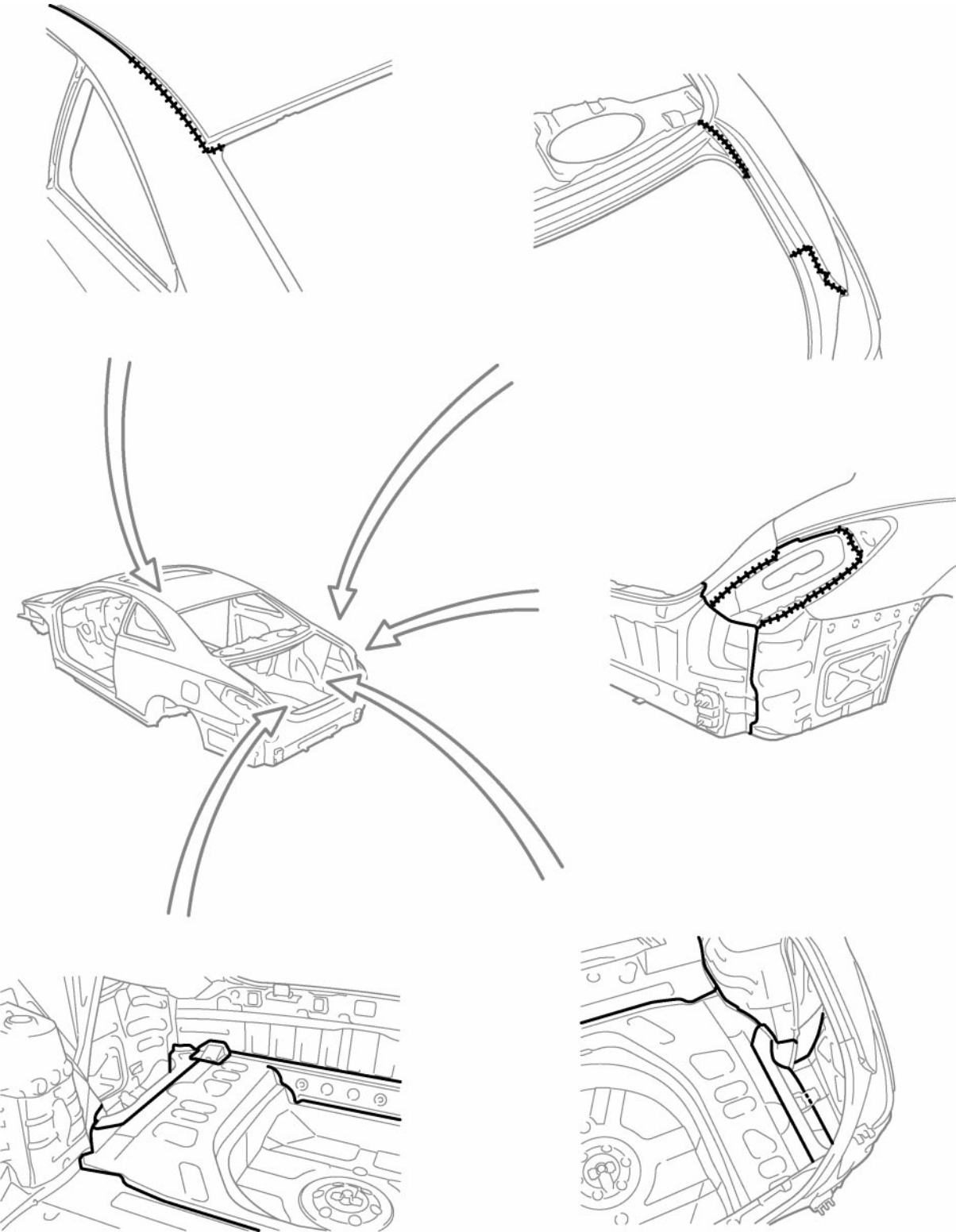
No Flat Finishing

1. ENGINE COMPARTMENT

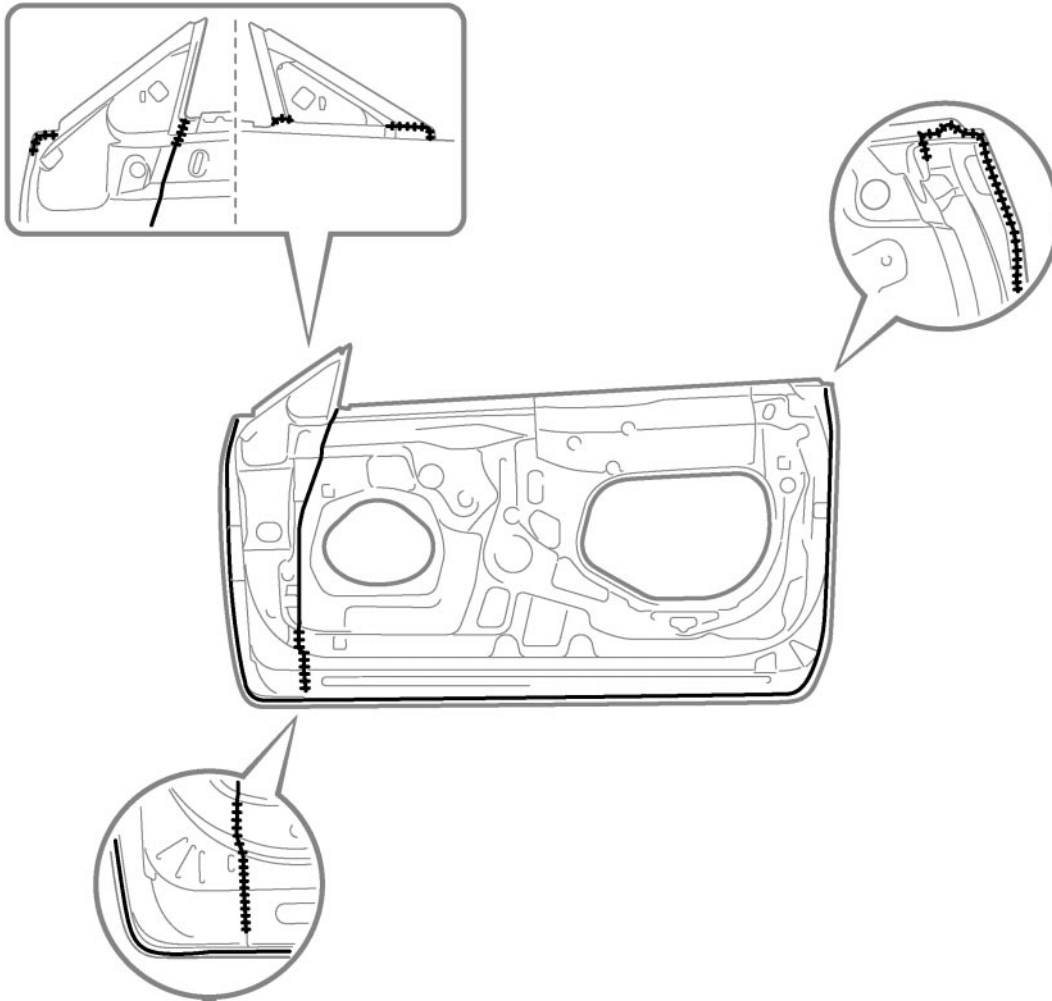


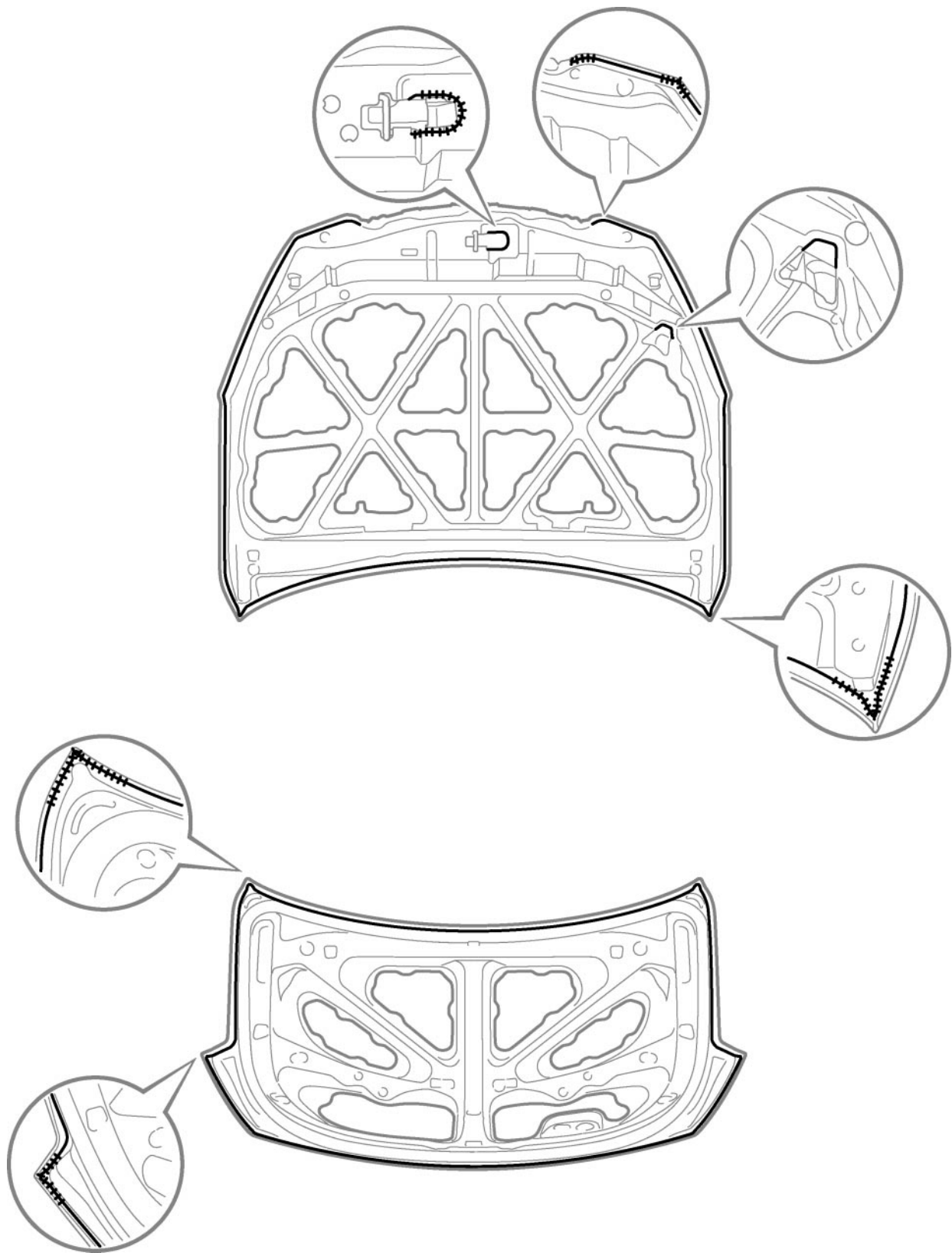
2. INSIDE



3. REAR LUGGAGE COMPARTMENT

4. DOOR PARTS



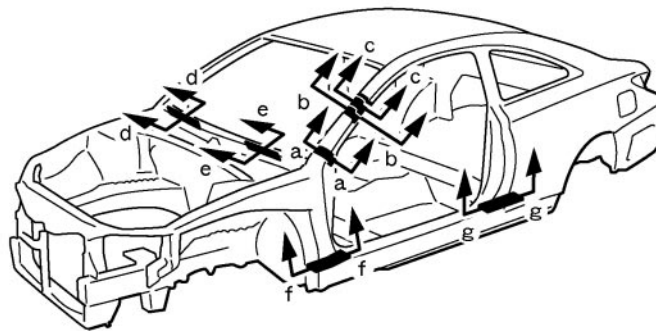
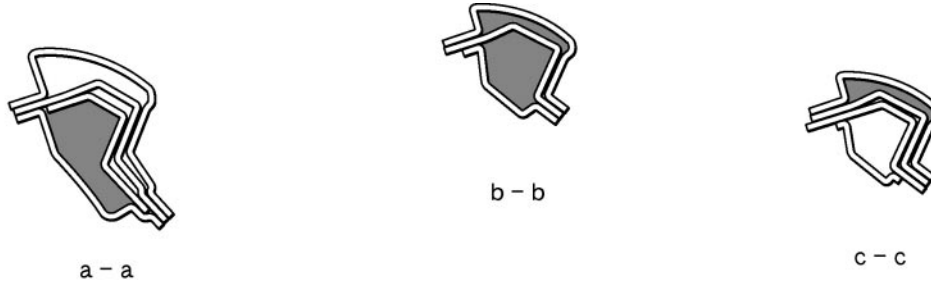


FOAMED MATERIAL APPLICATION AREAS

The sections shown in the figure below are filled with foamed material to provide noise insulation. After repairing these sections or their peripheries, refill with foamed materials.

HINT:

- 1) Use the service holes located on the reverse side of the body panel to refill with foamed materials.
- 2) When handling foamed material, follow the directions of the material's manufacturer.

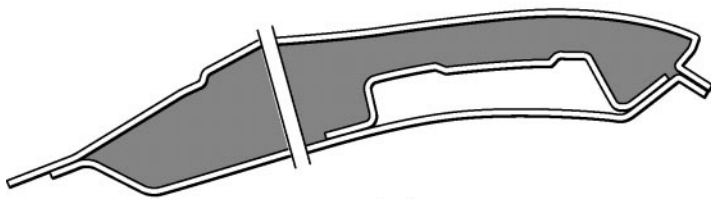
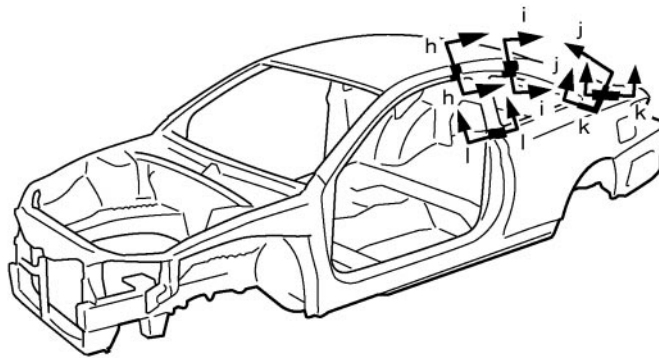




h-h



i-i



j-j

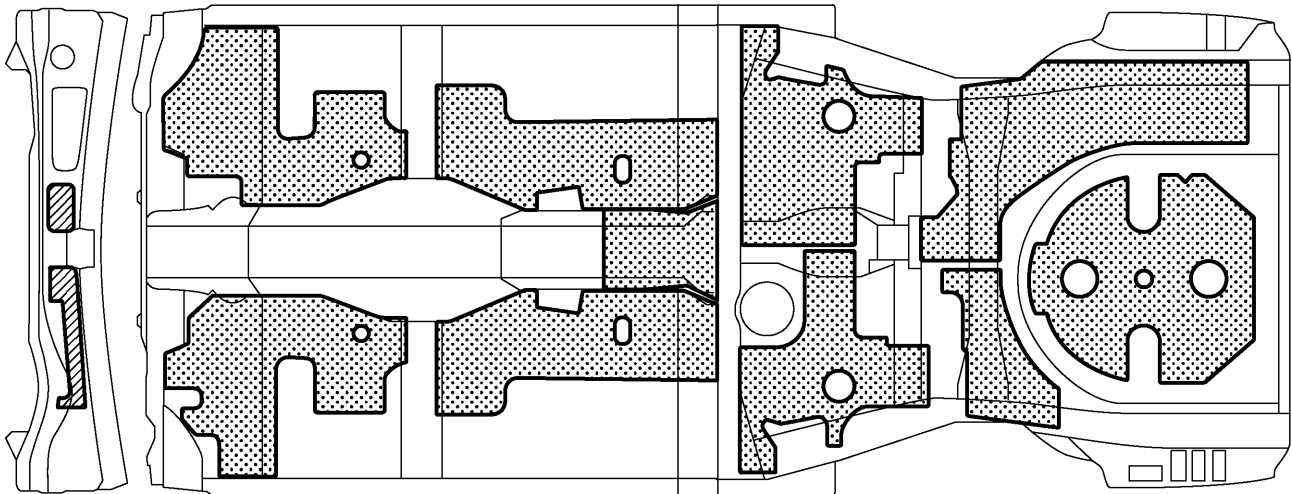


k-k



l-l

SILENCER SHEET INSTALLATION AREAS



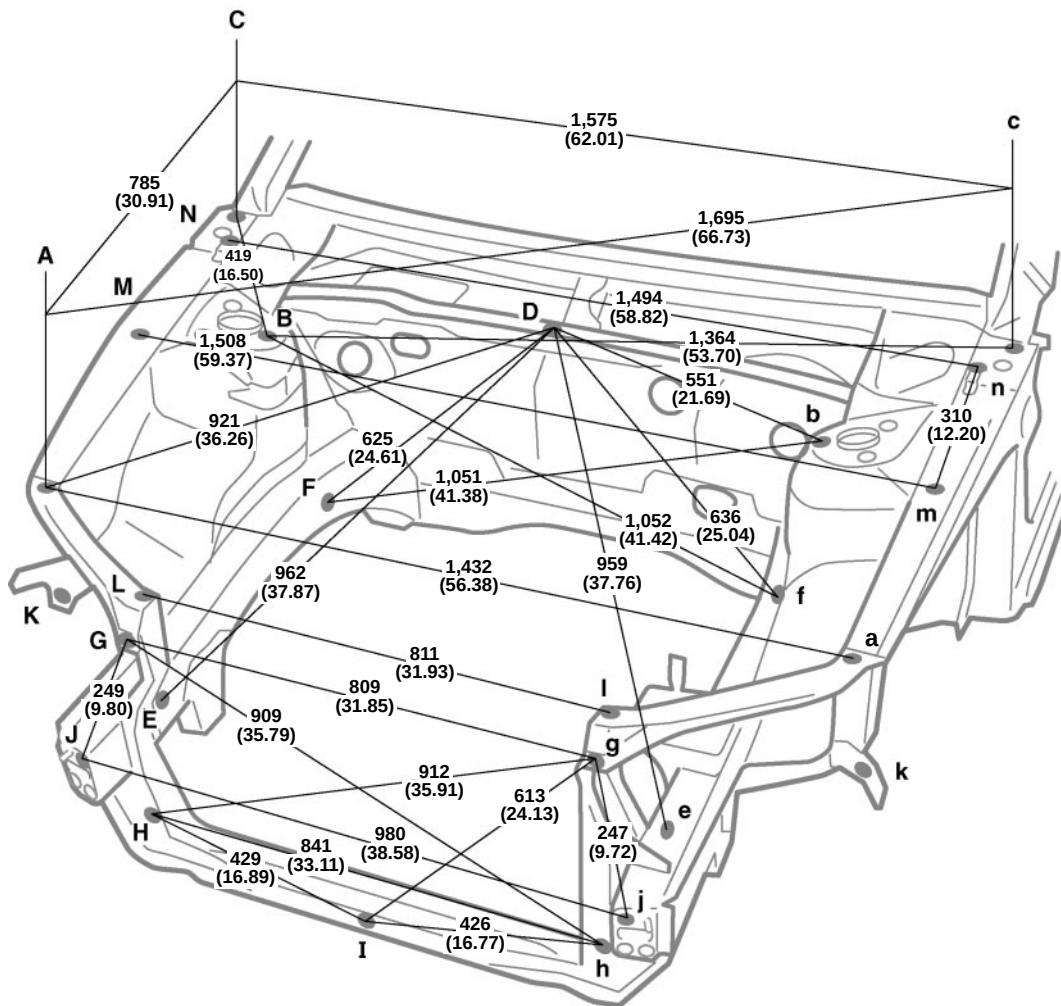
F16809

Thickness of Silencer Sheet			
	2.8 mm (0.110 in.)		4.2 mm (0.165 in.)
		—	

BODY DIMENSION DRAWINGS

ENGINE COMPARTMENT

(Three-Dimensional Distance)



Height from Imaginary Standard Line Vehicle Dimensions

A, a	C, c	L, l
674 (26.54)	800 (31.50)	662 (26.06)

B-b	C-L or c-l	C-l or c-L	D-L or D-l	G-j	g-J	K-k	M-n or m-N
1,069 (42.09)	1,061 (41.77)	1,550 (61.02)	884 (34.80)	922 (36.30)	928 (36.54)	1,508 (59.37)	1,533 (60.55)

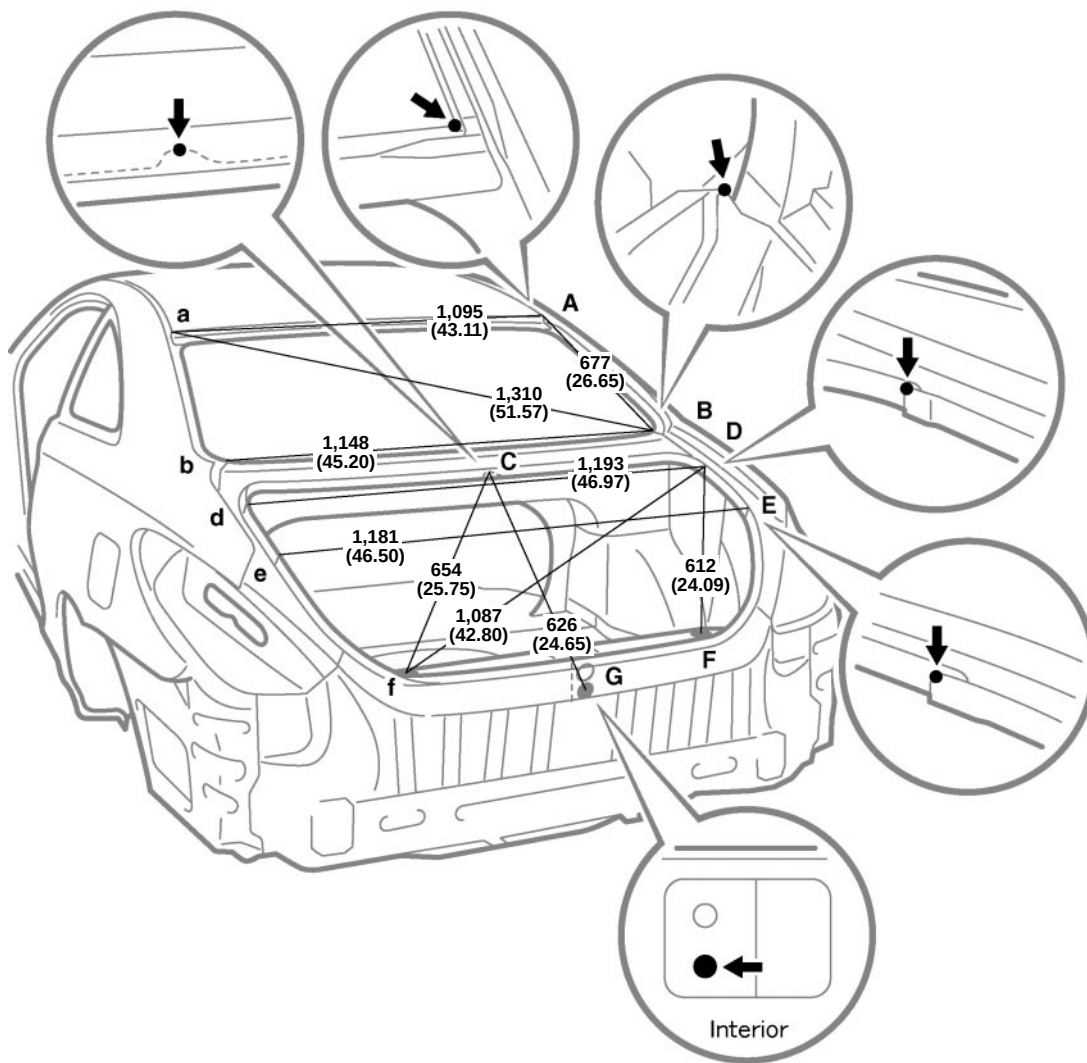
HINT: For symbols, capital letters indicate right side of vehicle, small letters indicate left side of vehicle (Seen from rear).

mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Radiator upper support standard hole	10 (0.39)	H, h	Radiator support standard hole	10 (0.39)
B, b	Front spring support hole-inner	12.5 (0.492)	I	Hood lock support installation nut	6 (0.24) nut
C, c	Hood hinge installation nut	8 (0.31) nut	J, j	Front bumper reinforcement installation nut	10 (0.39) nut
D	Cowl top inner panel installation hole	7 (0.28)	K, k	Fender apron plate standard hole	10 (0.39)
E, e	Front side member standard hole	18 (0.71)	L, l	Radiator upper support installation nut	6 (0.24) nut
F, f	Front side member standard hole	10 (0.39)	M, m	Front fender installation nut	6 (0.24) nut
G, g	Radiator upper support installation nut	6 (0.24) nut	N, n	Front fender installation nut	6 (0.24) nut

BODY OPENING AREAS (Rear View)

(Three-Dimensional Distance)



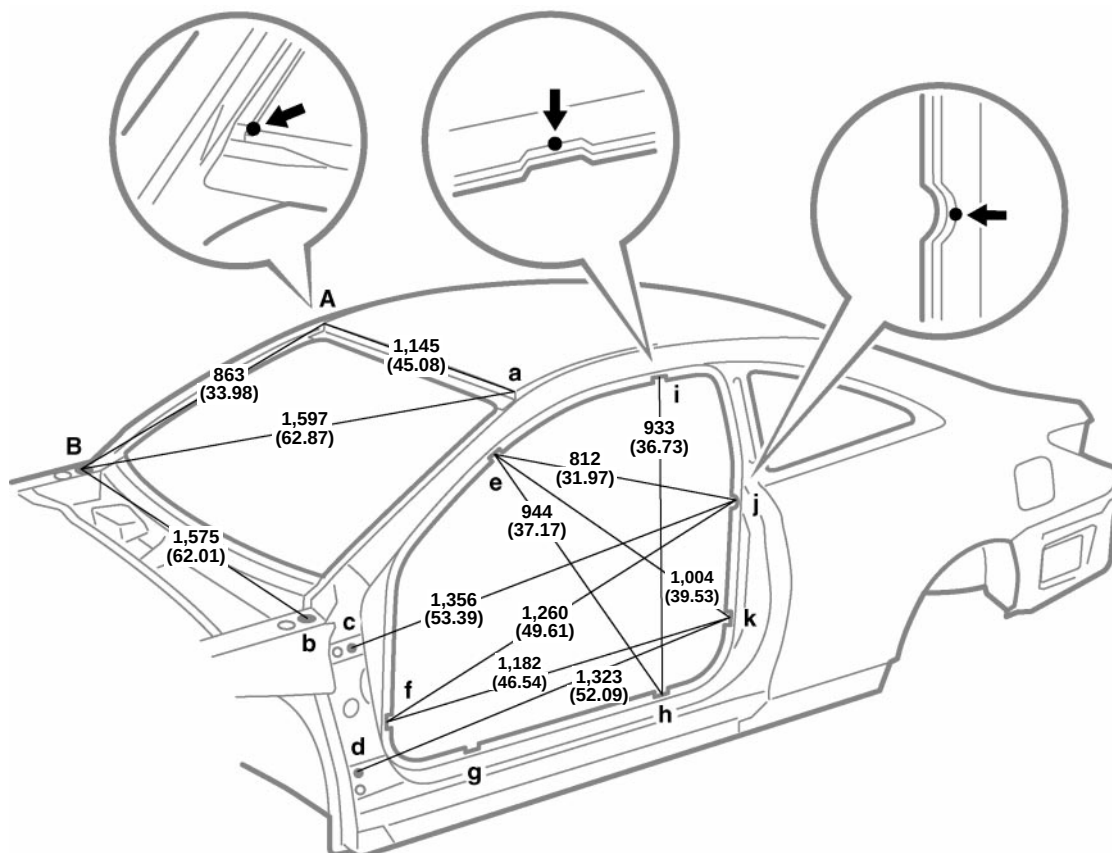
HINT: For symbols, capital letters indicate right side of vehicle, small letters indicate left side of vehicle (Seen from rear).

mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Roof panel corner	—	E, e	Luggage compartment opening trough/Quarter panel adjoining portion	—
B, b	Upper back reinforcement/Quarter panel adjoining portion	—	F, f	Rear floor finish plate installation hole	8.5 (0.335)
C	Upper back panel center mark	—	G	Luggage compartment door lock striker installation nut	6 (0.24) nut
D, d	Quarter panel/Upper back reinforcement	—			

BODY OPENING AREAS (Side View)

(Three-Dimensional Distance)



Vehicle Dimensions Left ↔ Right

E-e	F-f	G-g	H-h	I-i	J-j	K-k
1,282 (50.47)	1,430 (56.30)	1,434 (56.46)	1,435 (56.50)	1,171 (46.10)	1,331 (52.40)	1,431 (56.34)

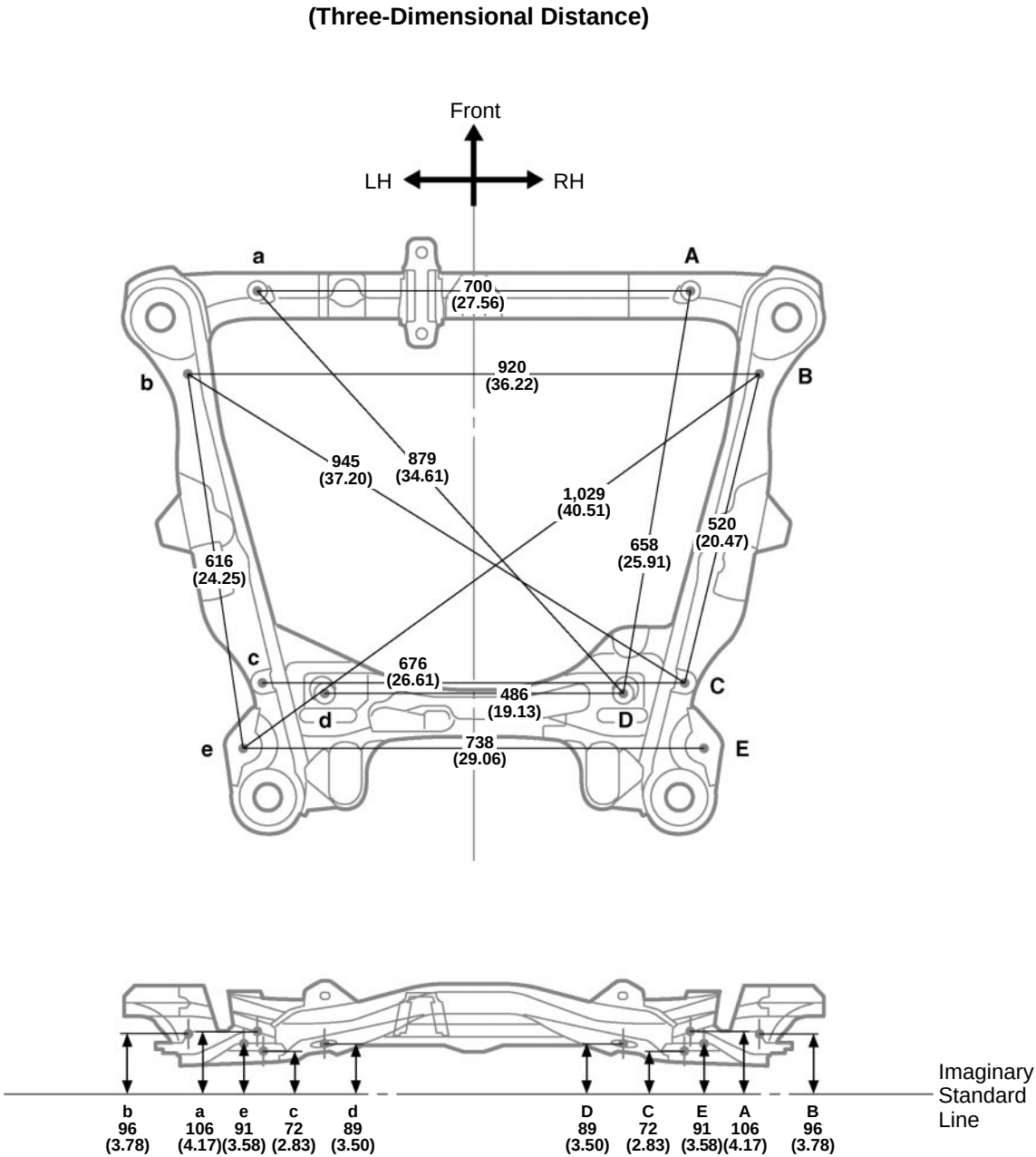
E-f or e-F	E-h or e-H	E-j or e-J	F-j or f-J	F-k or f-K	H-i or h-I	J-k or j-K
1,544 (60.79)	1,644 (64.72)	1,464 (57.64)	1,797 (70.75)	1,654 (65.12)	1,663 (65.47)	1,509 (59.41)

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

mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Roof panel corner	—	G, g	Rocker panel assembly mark	—
B, b	Hood hinge installation nut-rear	8 (0.31) nut	H, h	Rocker panel assembly mark	—
C, c	Front door hinge installation nut	8 (0.31) nut	I, i	Roof side rail assembly mark	—
D, d	Front door hinge installation nut	8 (0.31) nut	J, j	Quarter panel assembly mark	—
E, e	Front body pillar assembly mark	—	K, k	Quarter panel assembly mark	—
F, f	Front body pillar assembly mark	—	—	—	—

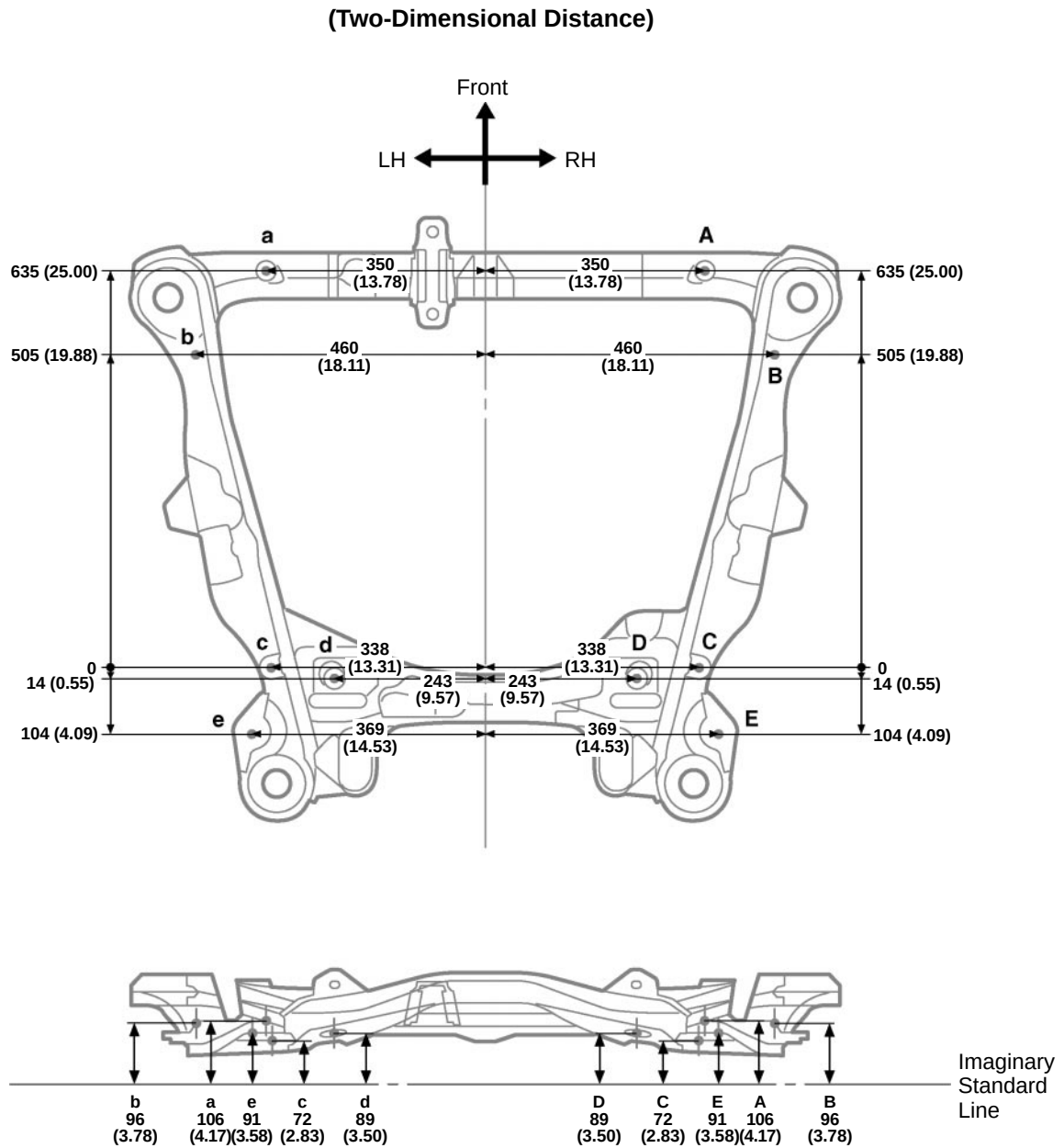
FRONT FRAME



mm (in.)

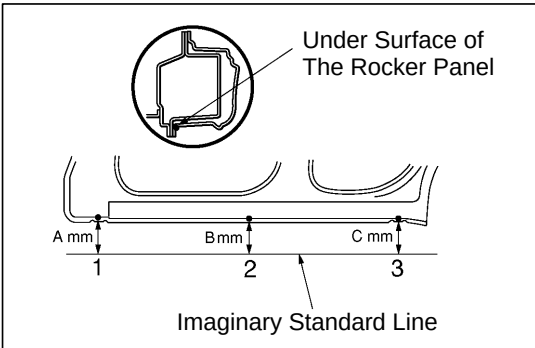
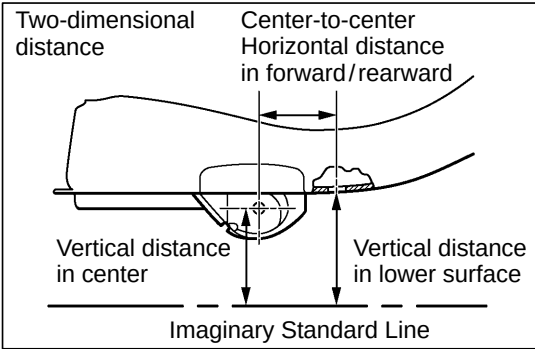
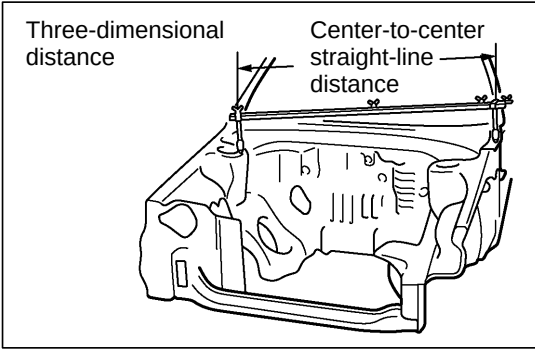
Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Front frame standard hole	13 (0.51)	D, d	Front frame standard hole	13 (0.51)
B, b	Front frame standard hole	13 (0.51)	E, e	Lower arm installation hole	15 (0.59)
C, c	Front frame standard hole	13 (0.51)	—	—	—

FRONT FRAME



mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Front frame standard hole	13 (0.51)	D, d	Front frame standard hole	13 (0.51)
B, b	Front frame standard hole	13 (0.51)	E, e	Lower arm installation hole	15 (0.59)
C, c	Front frame standard hole	13 (0.51)	—	—	—

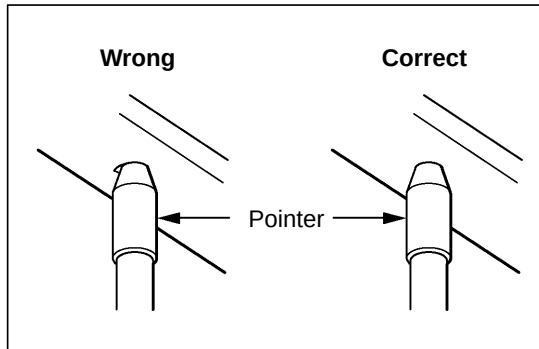
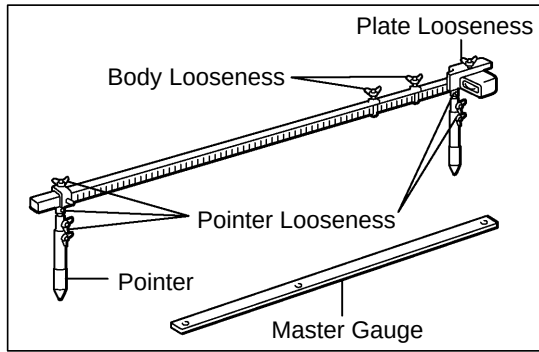


GENERAL INFORMATION

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

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



2. MEASURING

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

HINT:

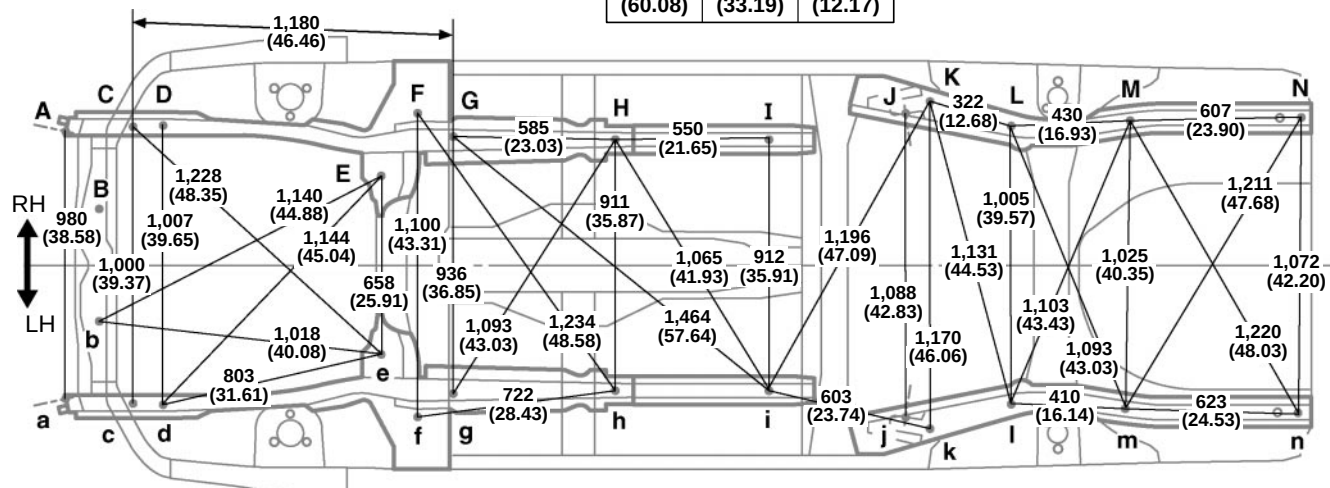
- 1) *The height of the left and right pointers must be equal.*
 - 2) *Always calibrate the tracking gauge before measuring or after adjusting the pointer height.*
 - 3) *Take care not to drop the tracking gauge or otherwise shock it.*
 - 4) *Confirm that the pointers are securely in the holes.*
- (c)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

UNDER BODY

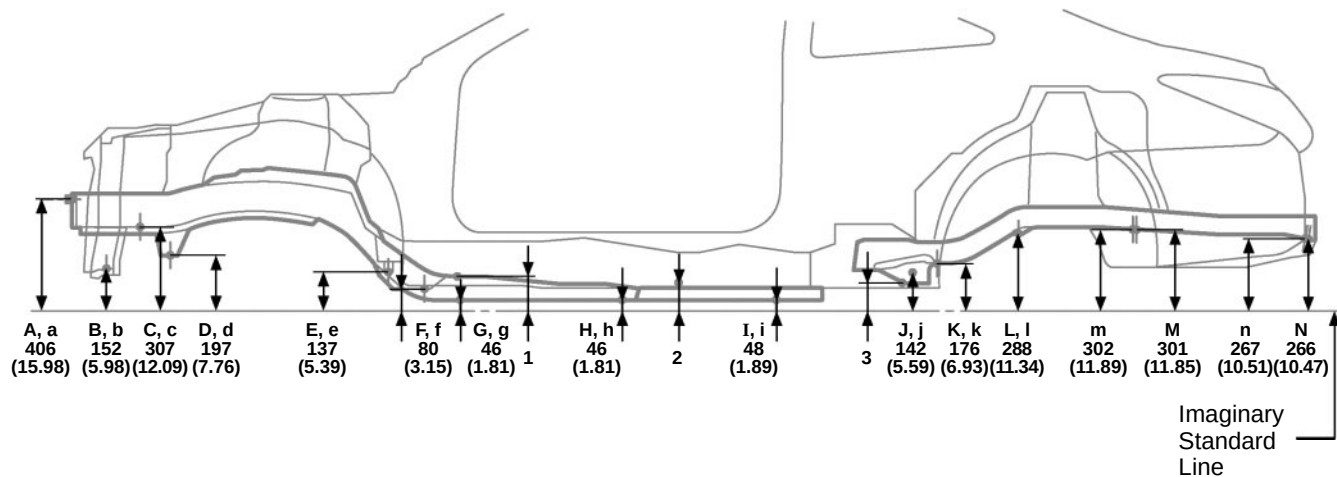
(Three-Dimensional Distance)

Vehicle Dimensions

C-g or c-G	E-g or e-G	E-G or e-g
1,526 (60.08)	843 (33.19)	309 (12.17)



1	2	3
115 (4.53)	100 (3.94)	100 (3.94)

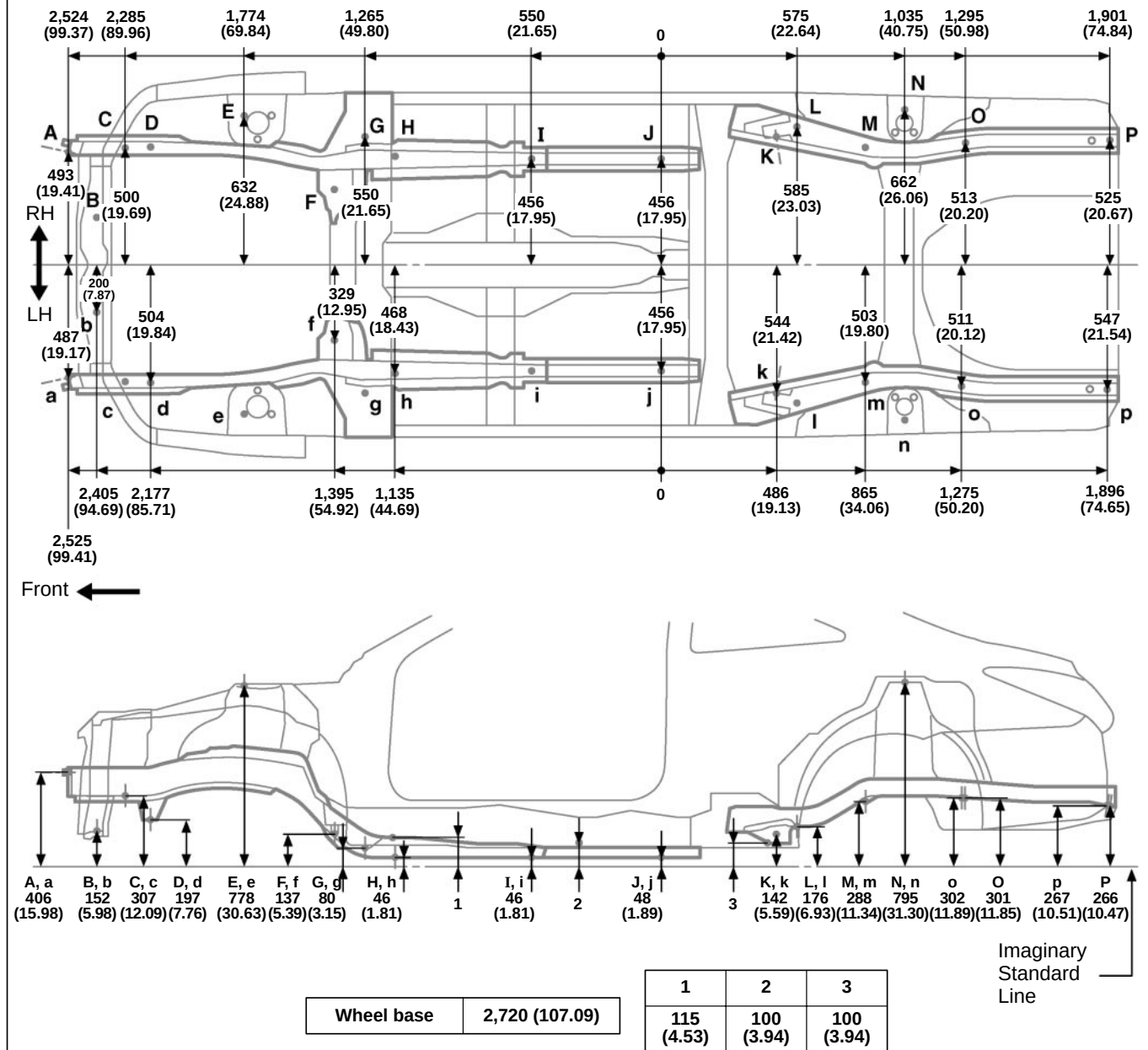


mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Front bumper reinforcement installation nut	10 (0.39) nut	H, h	Front side member standard hole	18 (0.71)
B, b	Front crossmember standard hole	15 (0.59)	I, i	Front floor under reinforcement standard hole	15 (0.59)
C, c	Front side member standard hole	18 (0.71)	J, j	Rear strut bar installation hole inner	12 (0.47)
D, d	Front frame installation nut	16 (0.63) nut	K, k	Rear floor side member standard hole	18 (0.71)
E, e	Front frame installation nut	16 (0.63) nut	L, l	Rear suspension member installation nut	12 (0.47) nut
F, f	Torque box front standard hole	25 (0.98)	M, m	Rear floor side member standard hole	18 (0.71)
G, g	Front side member standard hole	18 (0.71)	N, n	Transport hook installation nut	10 (0.39) nut

UNDER BODY

(Two-Dimensional Distance)



mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Front bumper reinforcement installation nut	10 (0.39) nut	I, i	Front side member standard hole	18 (0.71)
B, b	Front crossmember standard hole	15 (0.59)	J, j	Front floor under reinforcement standard hole	15 (0.59)
C, c	Front side member standard hole	18 (0.71)	K, k	Rear strut bar installation hole inner	12 (0.47)
D, d	Front frame installation nut	16 (0.63) nut	L, l	Rear floor side member standard hole	18 (0.71)
E, e	Front spring support hole outer	12.5 (0.492)	M, m	Rear suspension member installation nut	12 (0.47) nut
F, f	Front frame installation nut	16 (0.63) nut	N, n	Rear spring support hole outer	9.5 (0.374)
G, g	Torque box front standard hole	25 (0.98)	O, o	Rear floor side member standard hole	18 (0.71)
H, h	Front side member standard hole	18 (0.71)	P, p	Transport hook installation nut	10 (0.39) nut