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.

Applicable models: ACV30, 31 series
MCV30, 31 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 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

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.

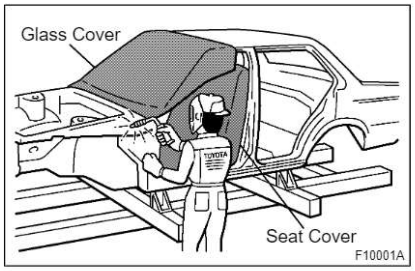
Section Title	Contents	Examples
INTRODUCTION	Explanation of general body repair. Views of weld panel replacement instructions.	Cautionary items. Views of weld panel replacement instructions.
BODY PANEL REPLACEMENT	Body aligning measurements and instructions for replacing the weld panels from the white body condition, from which bolted parts have been removed, with individual supply parts.	Front side member replacement. Quarter panel replacement. 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.

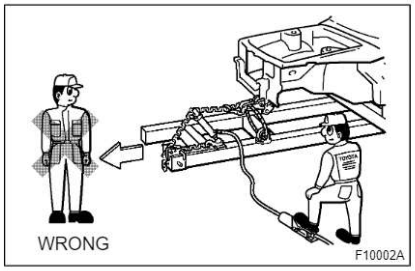
GENERAL REPAIR INSTRUCTIONS

1. WORK PRECAUTIONS



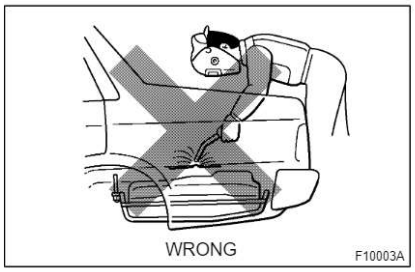
(a) VEHICLE PROTECTION

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



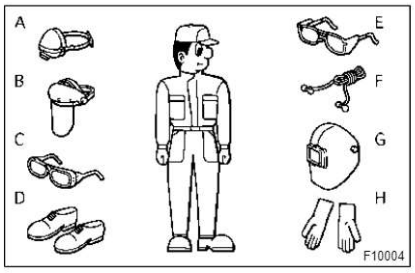
(b) SAFETY

(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	Acylonitrile 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.

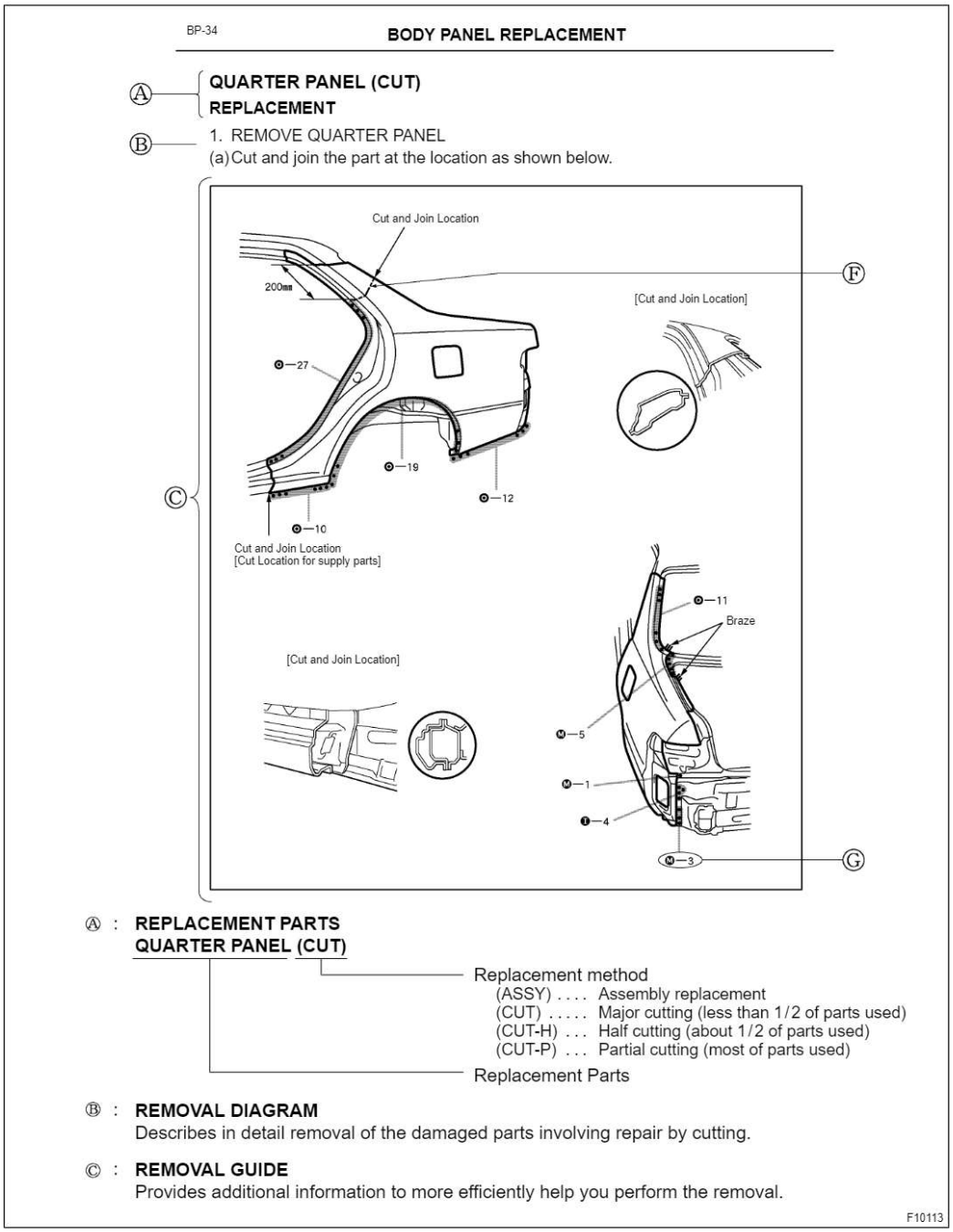
3. LOCATION OF PLASTIC BODY PARTS

Parts Name	Code
Radiator Grille	ABS
Front Bumper Cover	TSOP
Headlight	PC/PP
Fog Light	PC/PP
Sido Turn Signal Light (EUROPE)	PMMA/ABS
Outer Rear View Mirror	ABS
Door Outside Handle	PC/PBT
Door Outside Moulding	PP·PP/TPO
Rocker Panel Moulding	TPO
Rear Combination Light	ASA/PMMA
Rear Bumper Cover	TSOP
Luggage Compartment Outside Garnish	ABS
License Plate Light	PC
Rear Spoiler	ABS

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

HOW TO USE THIS MANUAL

1. BODY PANEL REPLACEMENT THIS MANUAL



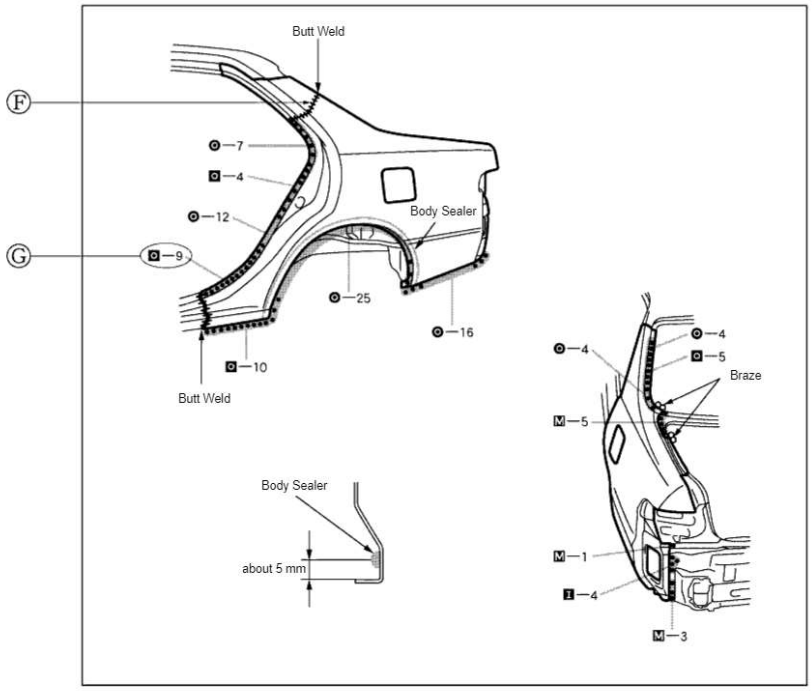
BODY PANEL REPLACEMENT BP-35

2. INSTALL QUARTER PANEL

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

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

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3. MEASURING THE OPENING PORTION DIMENSIONS (See page BP-XX)
4. APPLYING SEALER TO THE INSIDE OF THE VEHICLE (See page PC-XX)
5. APPLYING SEALER TO THE REAR, LUGGAGE COMPARTMENT (See page PC-XX)
6. CHARGING THE POLYURETHANE FOAM (See page PC-XX)
7. APPLYING ANTI-RUST AGENT
(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

Ⓓ

Ⓓ : **INSTALLATION GUIDE**
Provides additional information to more efficiently help you perform the installation.

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

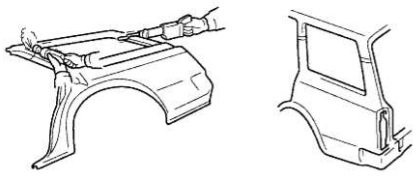
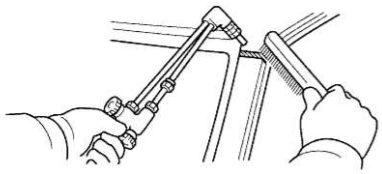
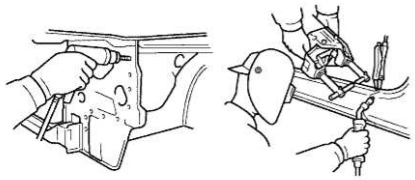
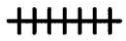
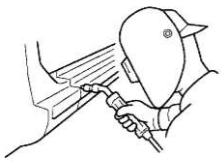
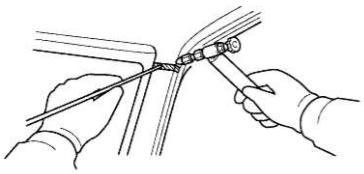
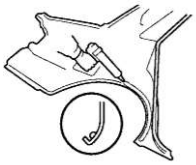
Ⓕ : **SYMBOLS**
See page SS-7.

Ⓖ : **ILLUSTRATION OF WELD POINTS**
Weld method and panel position symbols.
See page SS-8.

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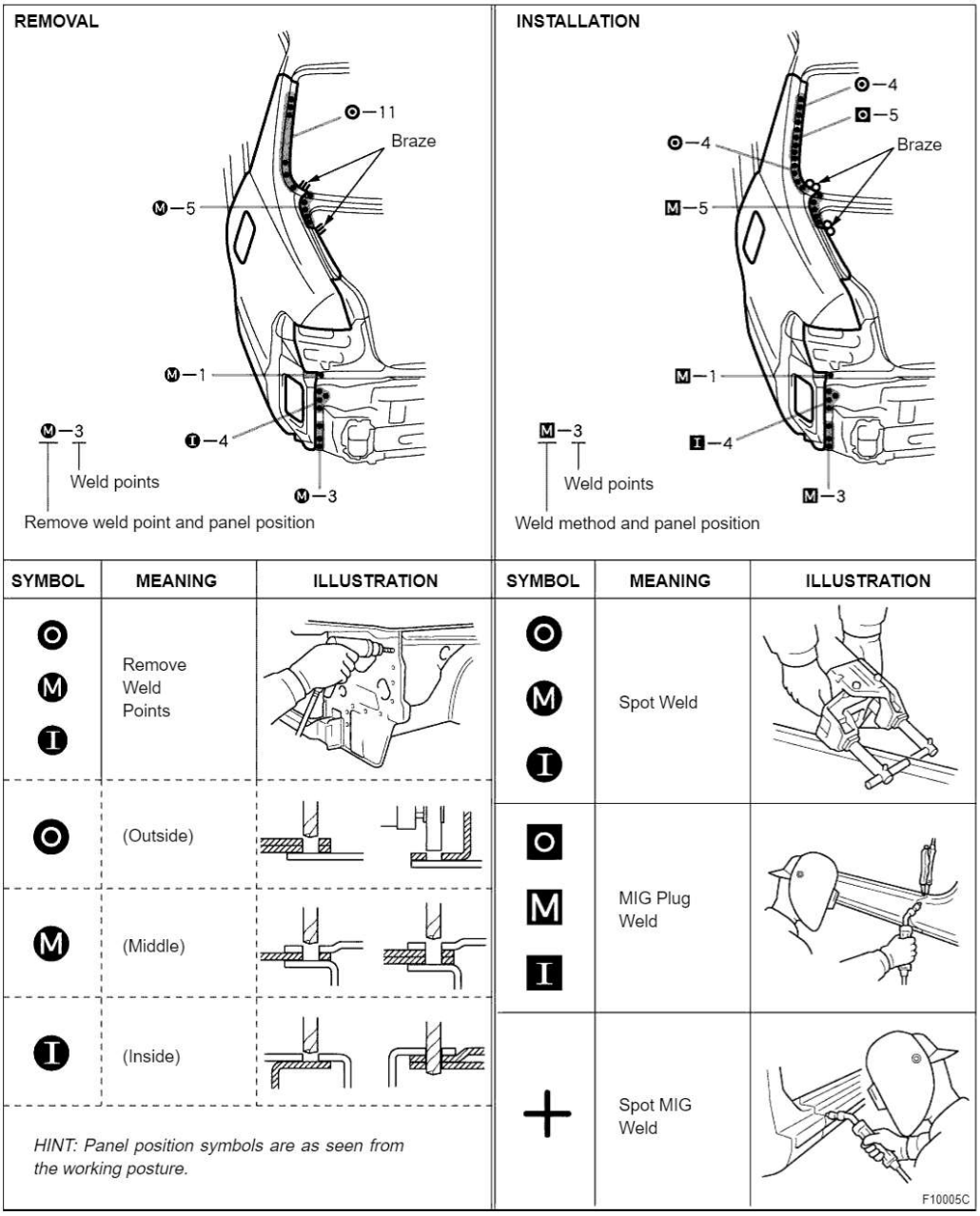
2. SYMBOLS

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

SYMBOLS	MEANING	ILLUSTRATION
	SAW CUT OR ROUGH CUT	
	REMOVE BRAZE	
	WELD POINTS	
	SPOT WELD OR MIG PLUG WELD (See Page SS-8)	
	CONTINUOUS MIG WELD (BUTT WELD OR TACK WELD)	
	BRAZE	
	BODY SEALER	 F10005B

3. ILLUSTRATION OF WELD POINT SYMBOLS

EXAMPLE:



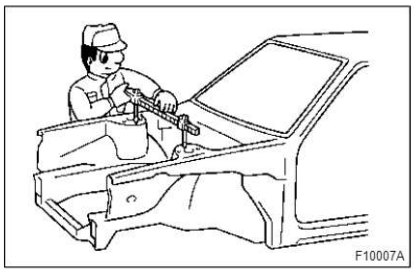
SYMBOL	MEANING	ILLUSTRATION
O M I	Remove Weld Points	
O	(Outside)	
M	(Middle)	
I	(Inside)	

HINT: Panel position symbols are as seen from the working posture.

SYMBOL	MEANING	ILLUSTRATION
O M I	Spot Weld	
O M I	MIG Plug Weld	
+	Spot MIG Weld	

F10005C

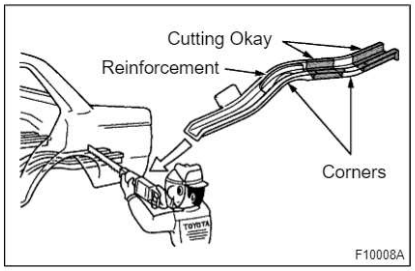
PROPER AND EFFICIENT WORK PROCEDURES



1. REMOVAL

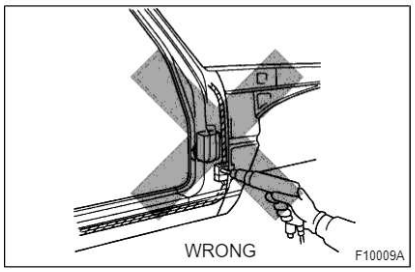
(a) PRE-REMOVAL MEASURING

(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

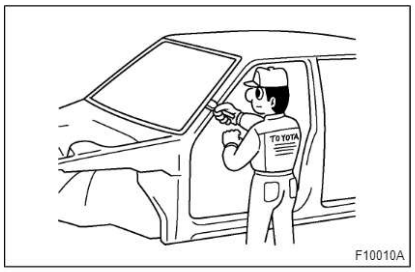
(1) Always cut in a straight line and avoid reinforced area.



(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.

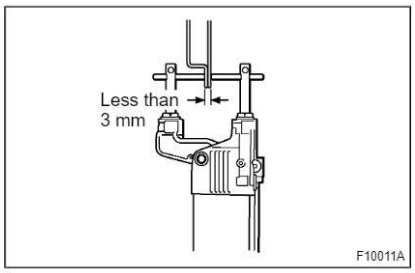
HINT: See “Handling Precautions on Related Components” on page SS-14.



(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 SS-14.

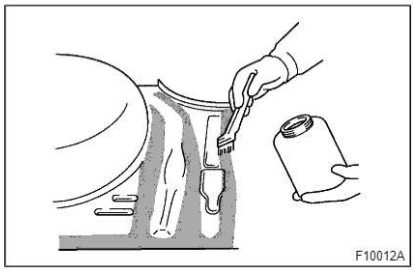


2. PREPARATION FOR INSTALLATION

(a) SPOT WELD POINTS

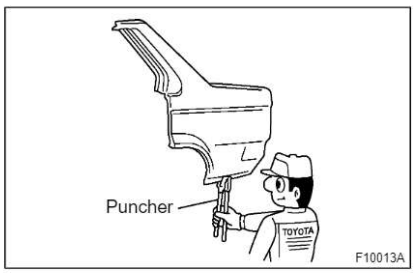
(1) When welding panels with a combined thickness of over 3 mm (0.12 in.), use a MIG (Metal Inert Gas) welder for plug welding.

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

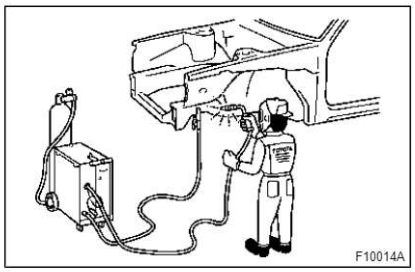


(c) MAKING HOLES FOR PLUG WELDING

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

REFERENCE: mm (in.)

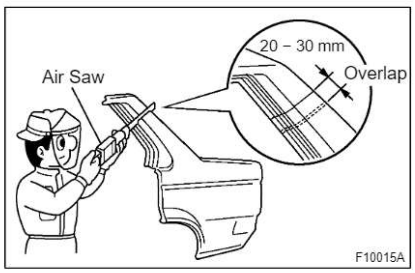
Thickness of welded portion	Size of plug hole
1.0 (0.04) under	5 (0.20) ø over
1.0 (0.04) – 1.6 (0.06)	6.5 (0.26) ø over
1.7 (0.07) – 2.3 (0.09)	8 (0.31) ø over
2.4 (0.09) over	10 (0.39) ø over



(d) SAFETY PRECAUTIONS FOR ELECTRICAL COMPONENTS

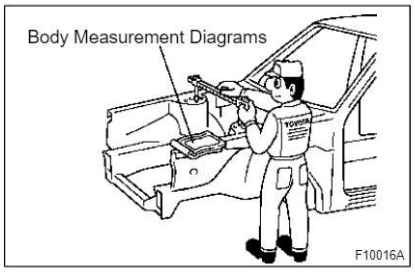
(1) When welding, there is a danger that electrical components will be damaged by the electrical current flowing through the body.

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



(e) ROUGH CUTTING OF JOINTS

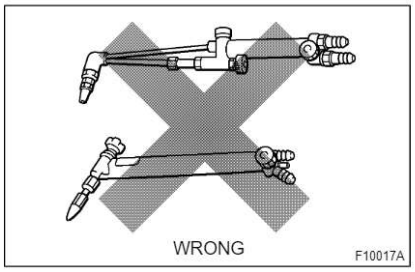
(1) For joint areas, rough cut the new parts, leaving 20 – 30 mm (0.79 – 1.18 in.) overlap.



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.

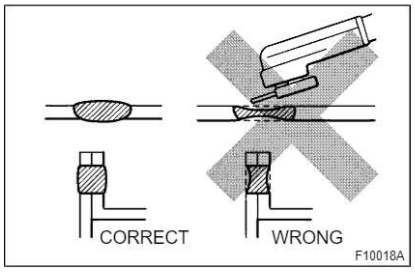


(b) WELDING PRECAUTIONS

(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.

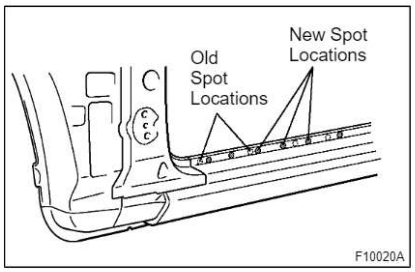
(2) Plug welding should be done with a MIG (Metal Inert Gas) welder. Do not gas weld or braze panels at areas other than specified.



(c) POST-WELDING REFINISHING

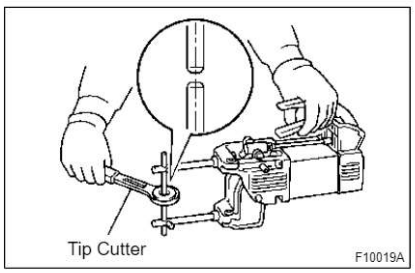
(1) Always check the welded spots to insure they are secure.

(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

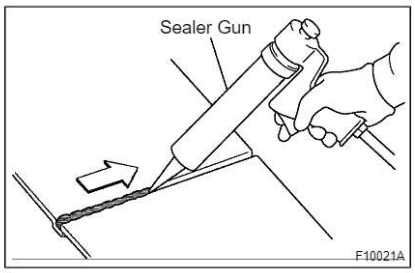
(1) Try to avoid welding over previous spots.



(e) SPOT WELDING PRECAUTIONS

(1) The shape of the welding tip point has an effect on the strength of the weld.

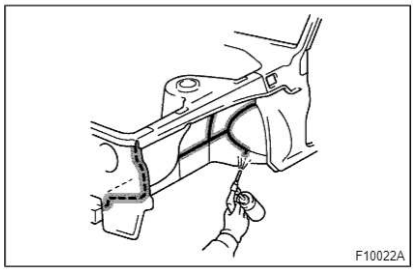
(2) Always insure that the seams and welding tip are free of paint.



4. ANTI-RUST TREATMENT

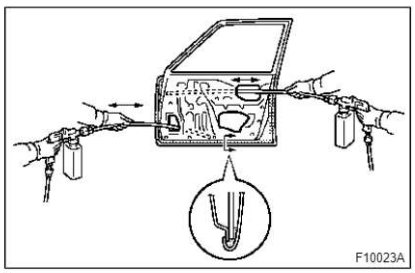
(a) BODY SEALER APPLICATION

(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

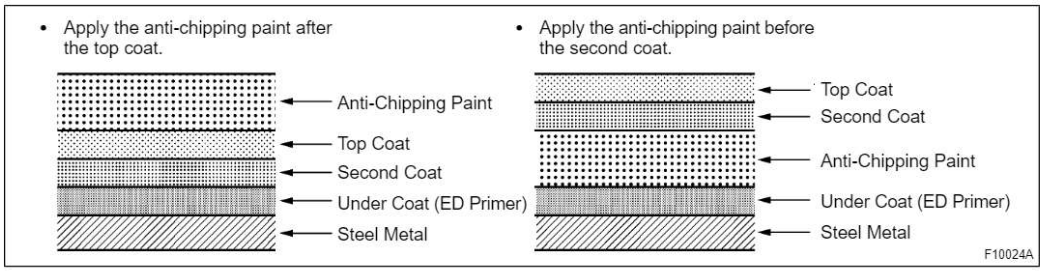
REFERENCE:

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.



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 section BR of the repair manual for the relevant model year when handling brake system parts.

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

2. DRIVE TRAIN AND CHASSIS

The drive train and chassis are components that can have great effects on the running performance and vibration resistance of the vehicle. After installing components in the sections listed in the table below, perform alignments to ensure correct mounting angles and dimensions. 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 BP of this manual.

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.

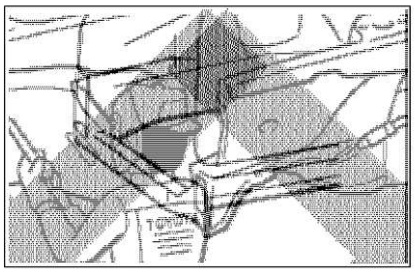
4. ECU (ELECTRONIC CONTROL UNIT)

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).

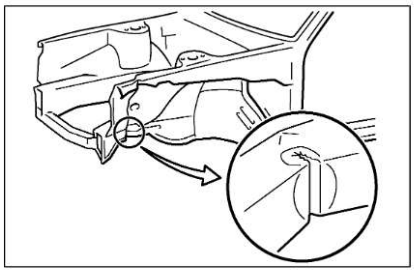
  NOTICE: If it is possible the ambient temperature may reach 80°C (176°F) or more, remove the ECUs from the vehicle before starting work.
- Be careful not to drop the ECUs and not to apply physical shocks to them.

PRECAUTIONS FOR REPAIRING BODY STRUCTURE PANELS



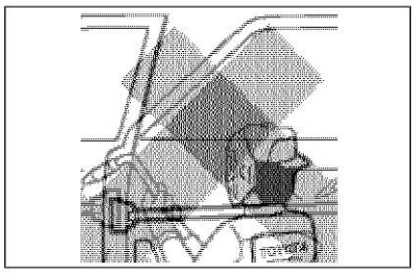
1. HEAT REPAIR FOR BODY STRUCTURE PANELS

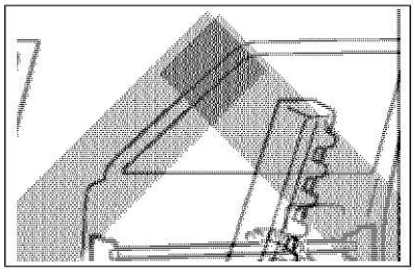
Toyota prohibits the use of the heat repair method on body structure panels when repairing a vehicle damaged in a collision.
Panels that have high strength and rigidity, as well as a long life span for the automobile body are being sought after.
At Toyota, in order to fulfill these requirement, we use 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 parts are 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 kink.
Since structure parts are designed to exhibit a its performance in their original shape, if parts are deformed in an accident, or if the deformed parts are repaired and reused, the parts may 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 that help reduce the probability of injury to passengers in side collisions.

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

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

Since these parts are designed to exhibit its performance in their original shape, if parts are deformed in an accident, or if the deformed parts are repaired and reused, the parts may become unable to exhibit he same performance as intended in the design.

If the impact beam or bracket is damaged, replace the door assembly which has the damaged beam.

Also, the bumper reinforcement is a necessary and important part that helps reduce the probability of injury to passengers in front collisions, and for the same reasons explained above, should be replaced if damaged.

ABBREVIATIONS USED IN THIS MANUAL

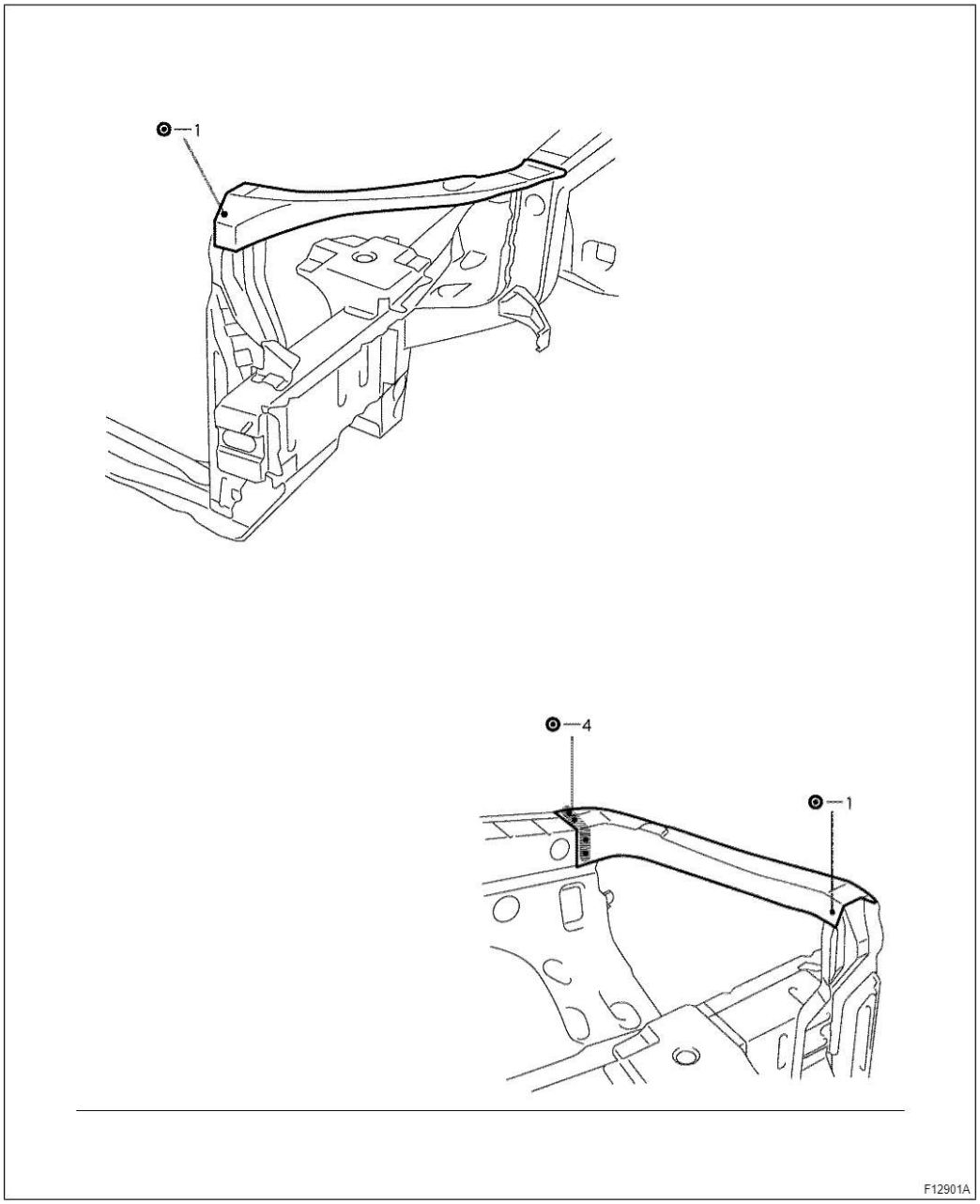
For convenience, the following abbreviations are used in this manual.

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

RADIATOR UPPER SUPPORT (ASSY)

REPLACEMENT

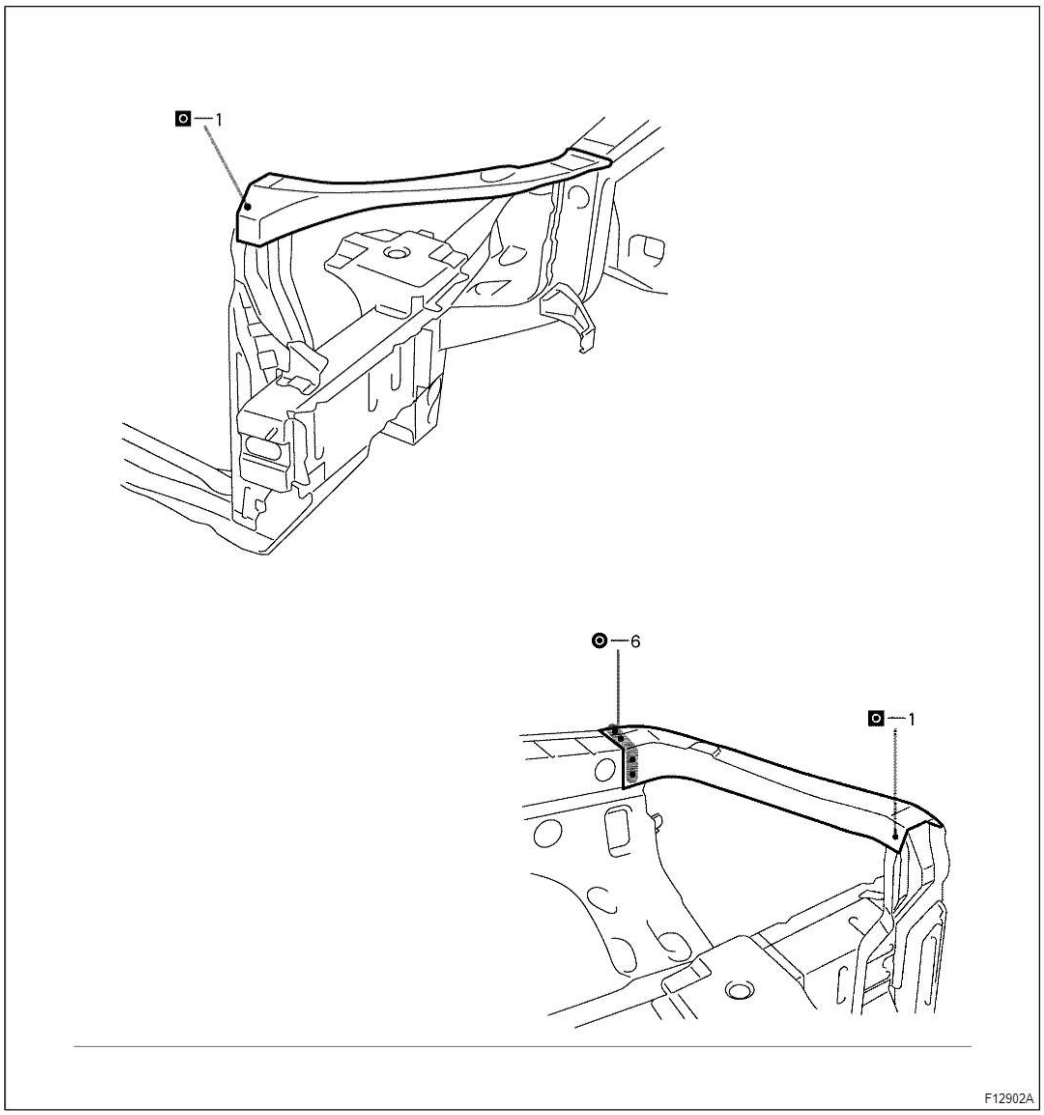
1. REMOVE RADIATOR UPPER SUPPORT



2. INSTALL RADIATOR UPPER SUPPORT

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

HINT:
First install the radiator upper center support.



3. MEASURING THE ENGINE COMPARTMENT DIMENSIONS (See page BP-100)

4. APPLYING SEALER TO THE ENGINE COMPARTMENT (See page PC-1)

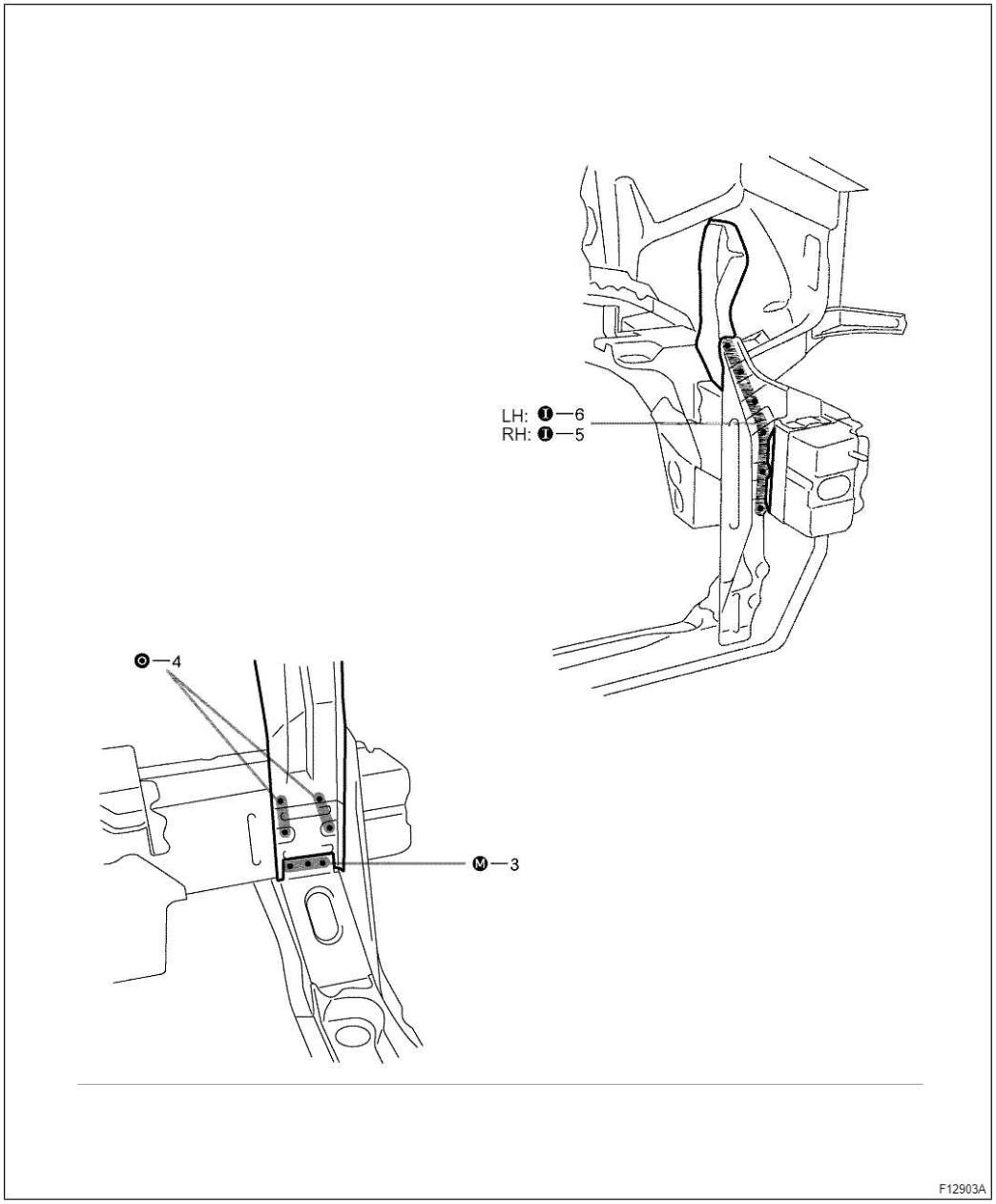
5. APPLYING ANTI-RUST AGENT

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

RADIATOR SUPPORT UPPER BRACE (ASSY)

REPLACEMENT

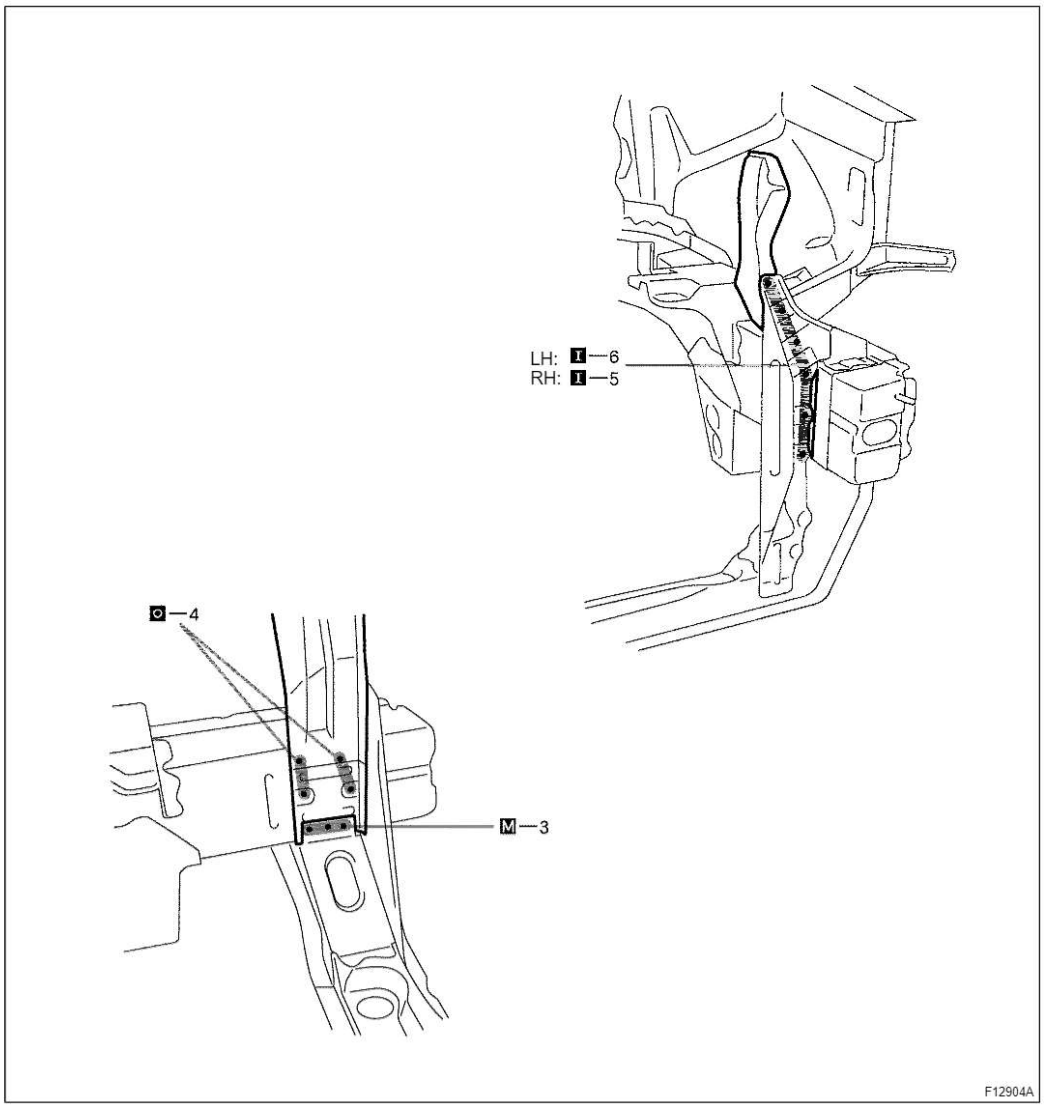
1. REMOVE RADIATOR UPPER SUPPORT (See page BP-1)
2. REMOVE RADIATOR SUPPORT UPPER BRACE



3. INSTALL RADIATOR SUPPORT UPPER BRACE

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

HINT:
First install the radiator upper support and radiator upper center support.



4. MEASURING THE ENGINE COMPARTMENT DIMENSIONS (See page BP-100)

5. INSTALL RADIATOR UPPER SUPPORT (See page BP-1)

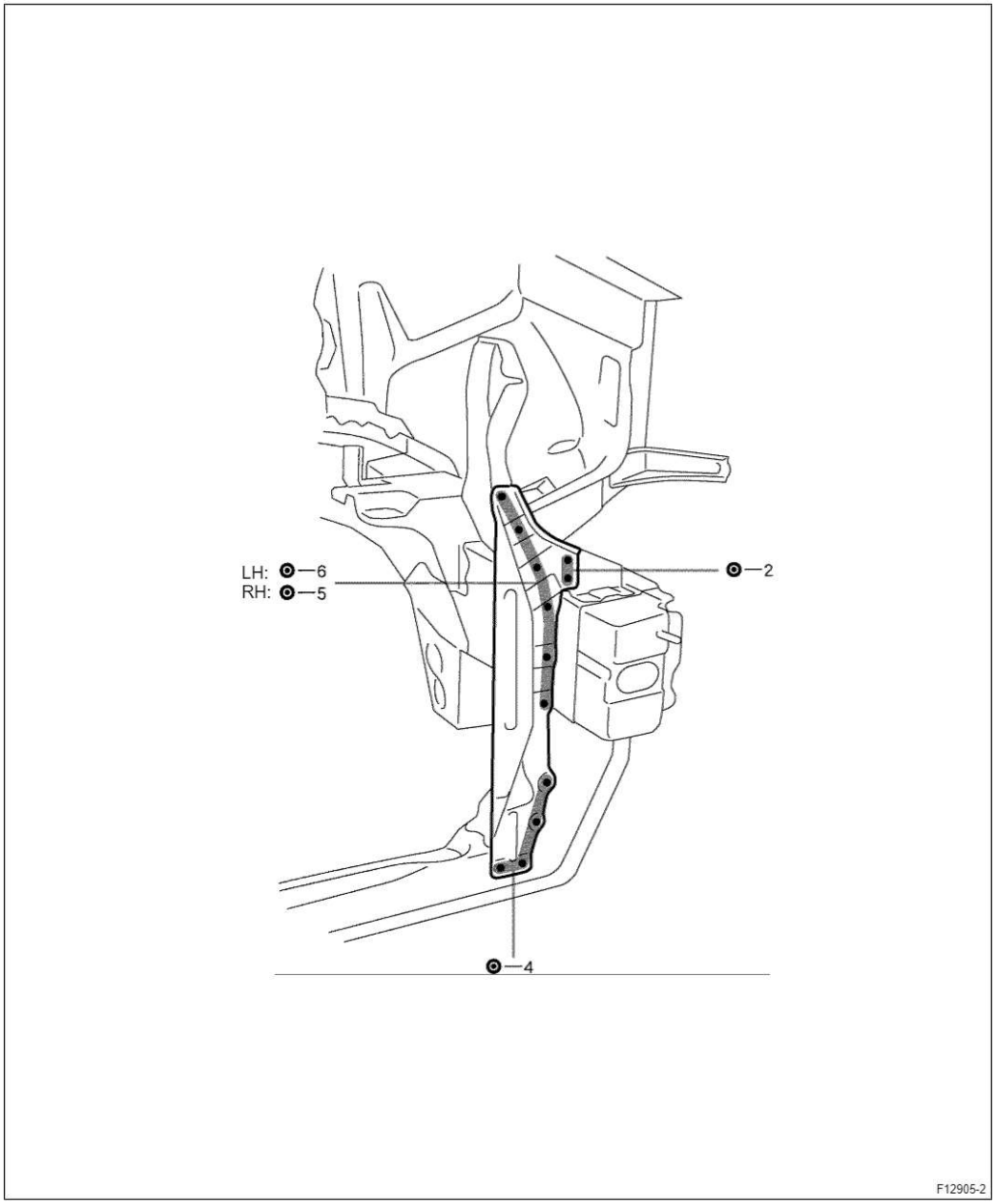
6. APPLYING ANTI-RUST AGENT

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

RADIATOR SIDE SUPPORT (ASSY)

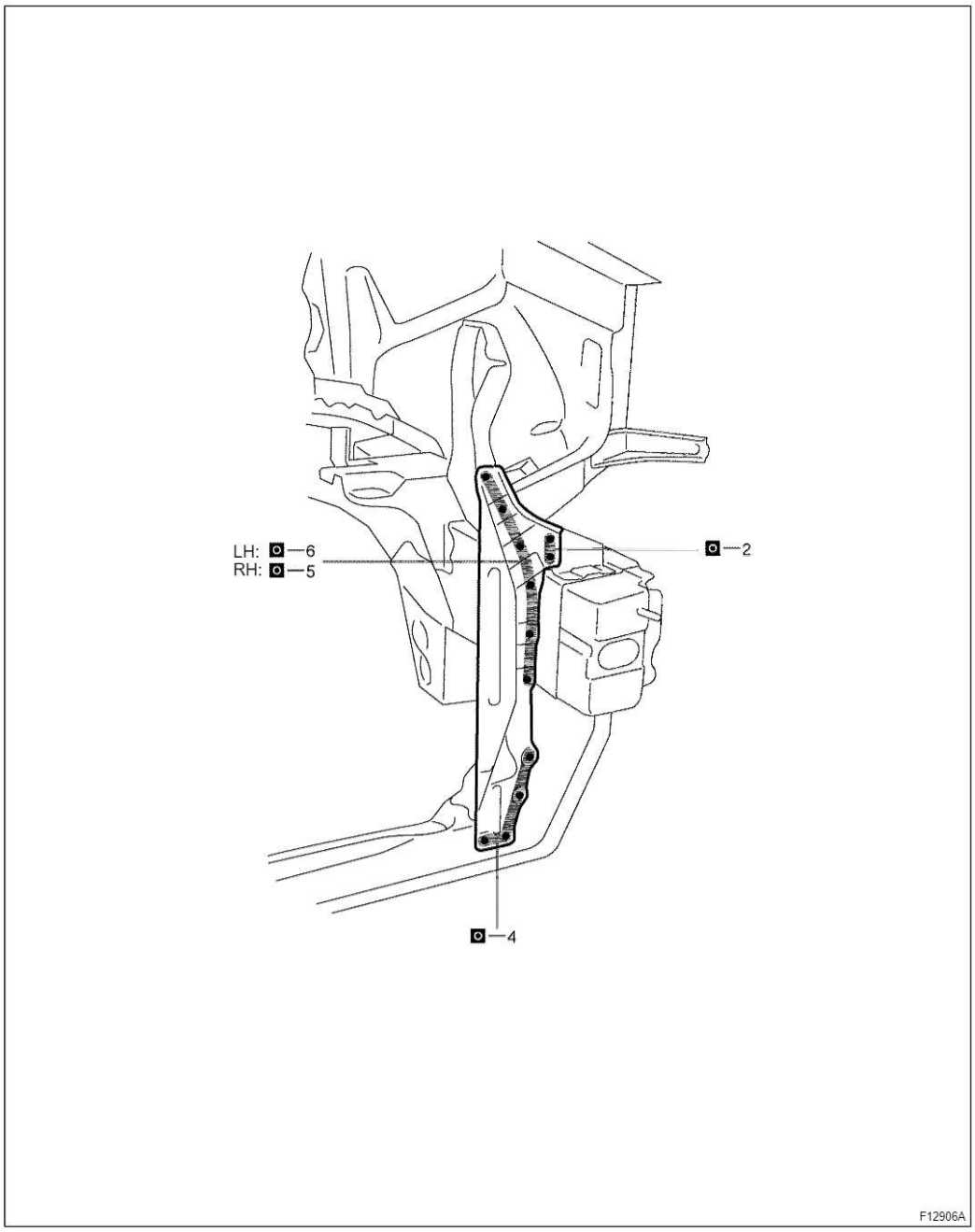
REPLACEMENT

1. REMOVE RADIATOR UPPER SUPPORT (See page BP-1)
2. REMOVE RADIATOR SIDE SUPPORT



3. INSTALL RADIATOR SIDE SUPPORT

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



4. **INSTALL RADIATOR UPPER SUPPORT (See page BP-1)**

5. **APPLYING ANTI-RUST AGENT**

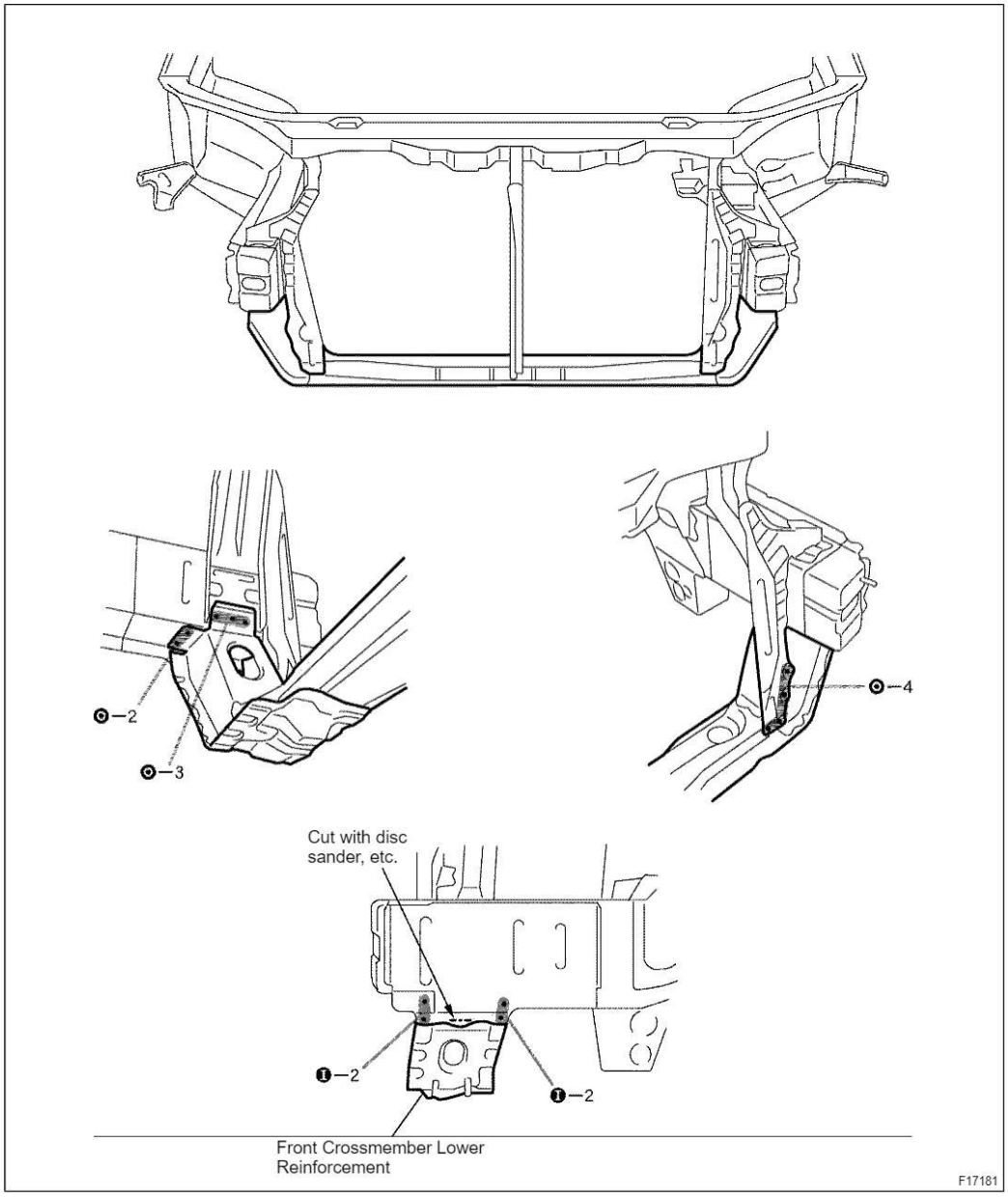
(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

FRONT CROSSMEMBER (ASSY)

REPLACEMENT

1. REMOVE FRONT CROSSMEMBER

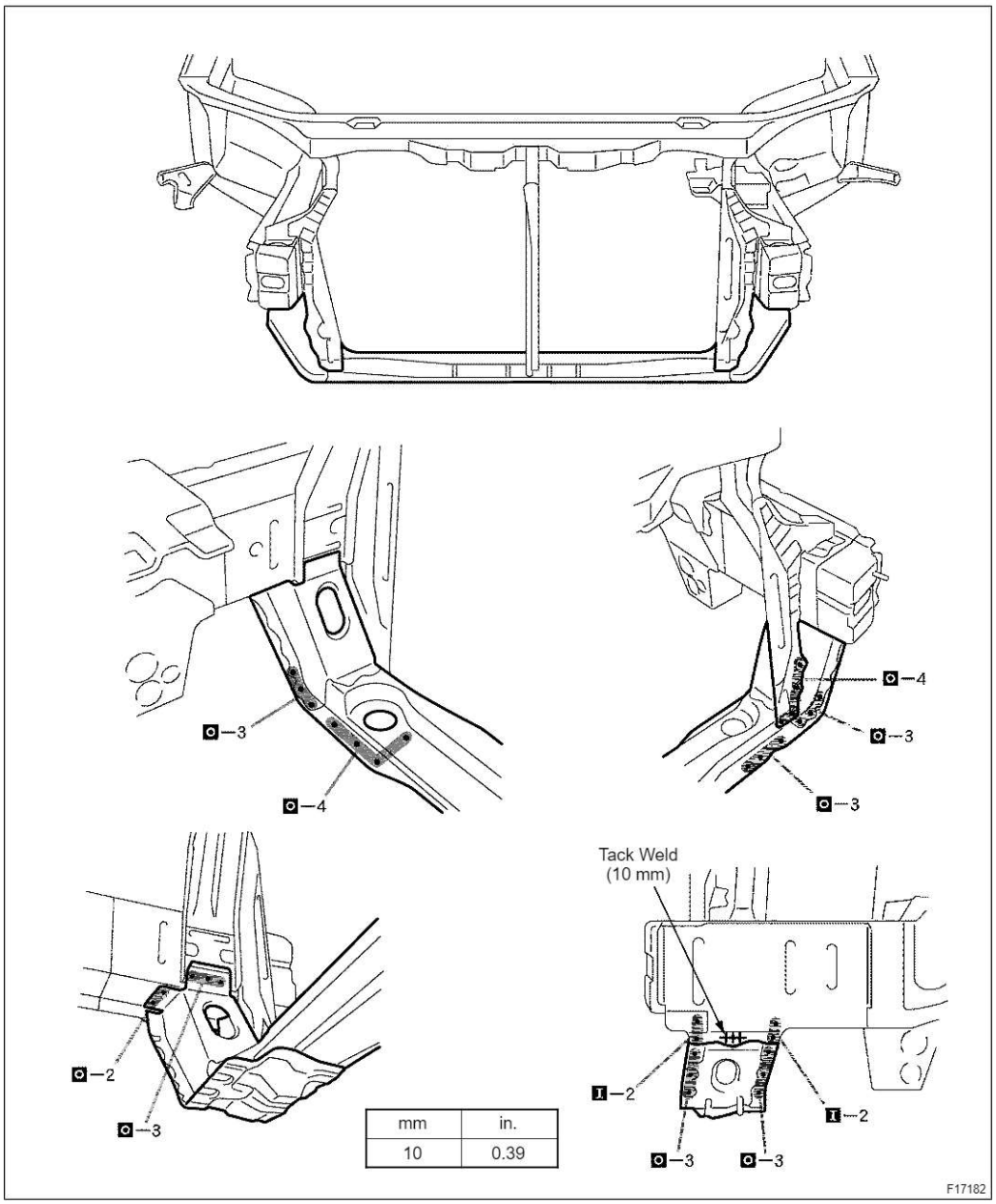
(a) Replace the front crossmember No.1 reinforcement and front crossmember lower reinforcement at the same time.



2. INSTALL FRONT CROSSMEMBER

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

HINT:
First install the radiator upper center support and hood lock support.



mm	in.
10	0.39

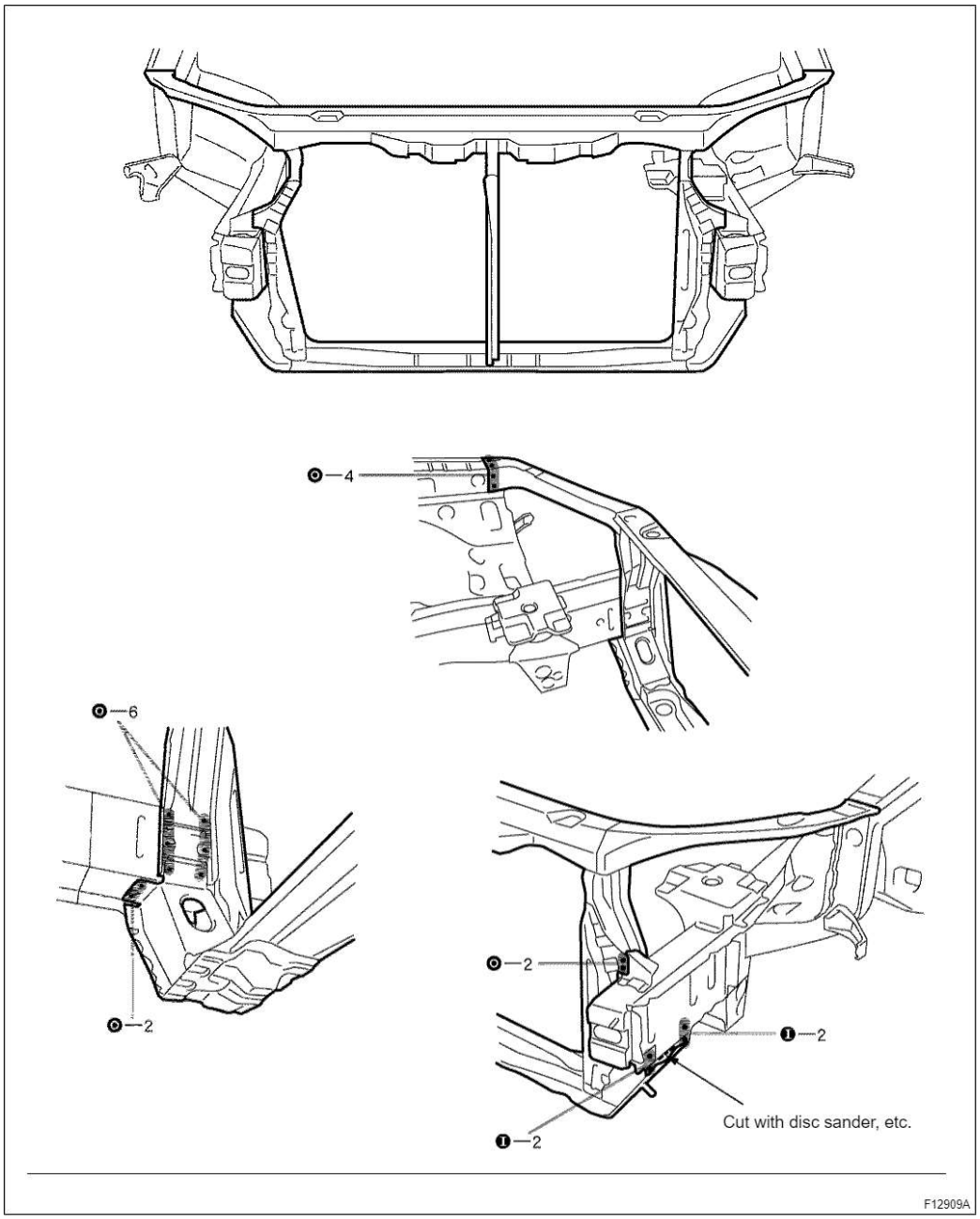
3. **MEASURING THE ENGINE COMPARTMENT DIMENSIONS (See page BP-100)**
4. **MEASURING THE UNDERBODY DIMENSIONS (See page BP-100)**
5. **APPLYING ANTI-RUST AGENT**

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

RADIATOR SUPPORT (ASSY)

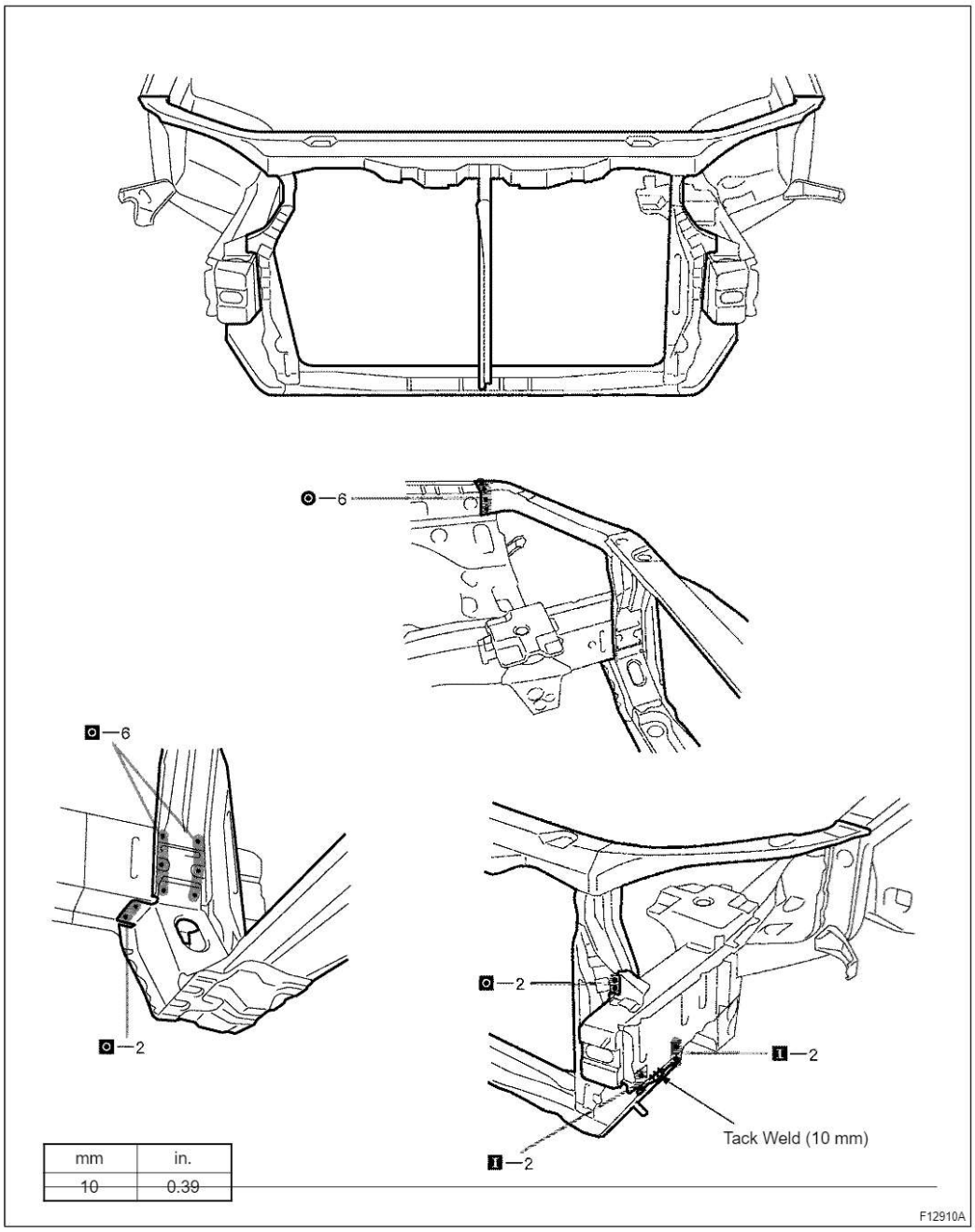
REPLACEMENT

1. REMOVE RADIATOR SUPPORT



2. INSTALL RADIATOR SUPPORT

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



mm	in.
~~10~~	~~0.39~~

3. **MEASURING THE ENGINE COMPARTMENT DIMENSIONS (See page BP-100)**
4. **MEASURING THE UNDER BODY DIMENSIONS (See page BP-98)**
5. **APPLYING SEALER TO THE ENGINE COMPARTMENT (See page PC-1)**
6. **APPLYING ANTI-RUST AGENT**

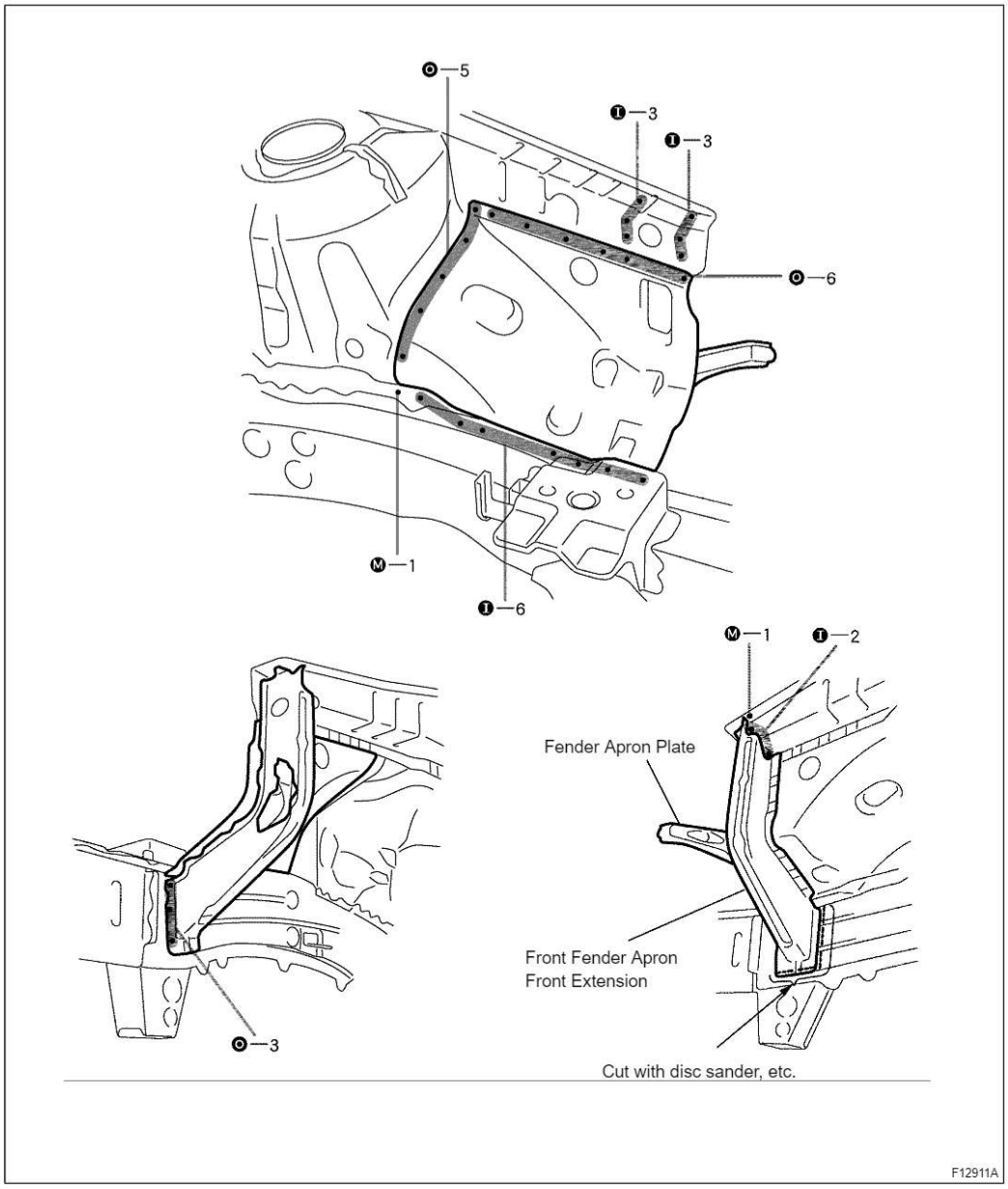
(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

FRONT FENDER FRONT APRON (ASSY)

REPLACEMENT

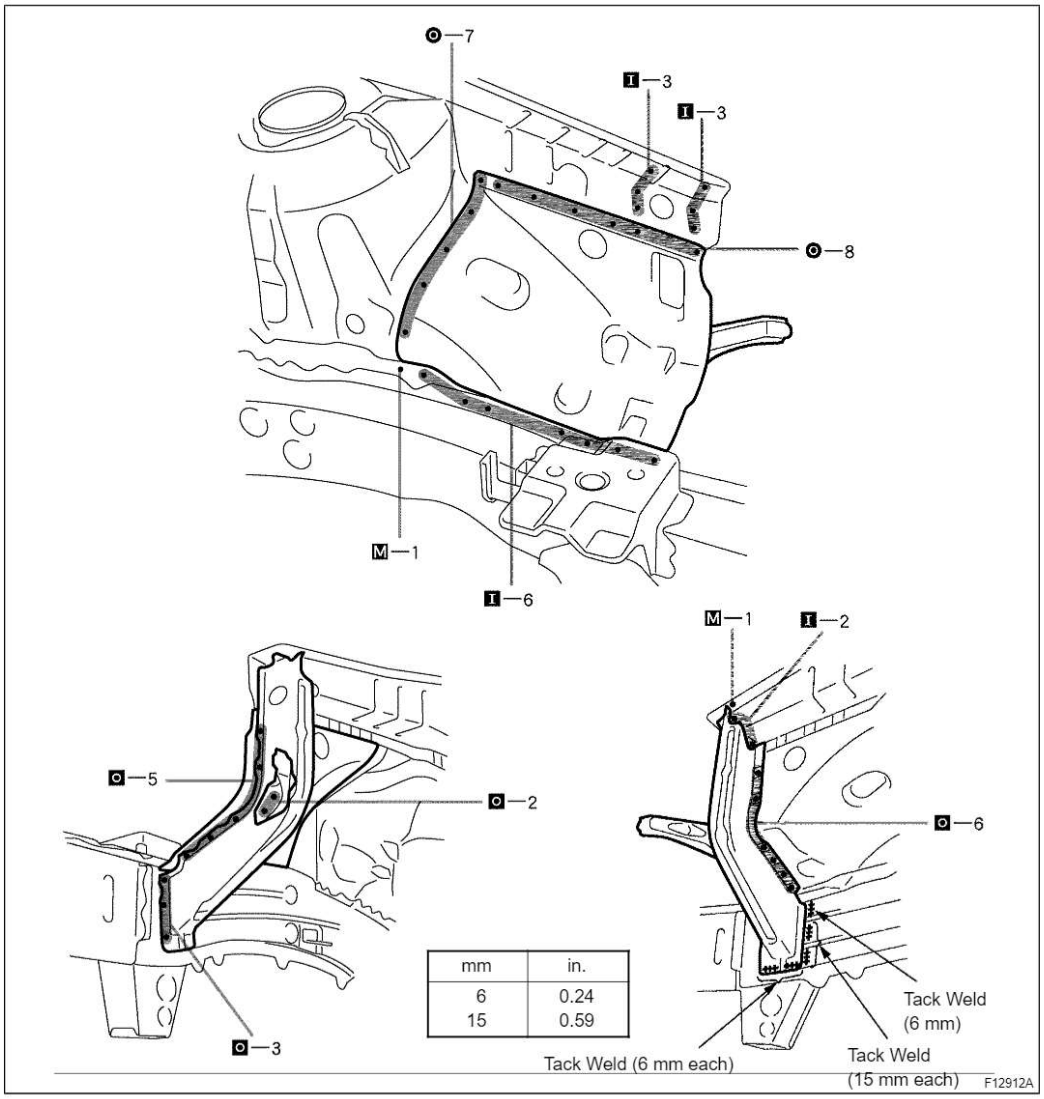
1. **REMOVE RADIATOR UPPER SUPPORT (See page BP-1)**
2. **REMOVE FRONT FENDER FRONT APRON**

(a) Replace the front fender apron front extension and fender apron plate at the same time.



3. INSTALL FRONT FENDER FRONT APRON

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



mm	in.
6	0.24
15	0.59

4. MEASURING THE ENGINE COMPARTMENT DIMENSIONS (See page BP-100)

5. INSTALL RADIATOR UPPER SUPPORT (See page BP-1)

6. APPLYING SEALER TO THE ENGINE COMPARTMENT (See page PC-1)

7. APPLYING UNDERCOATING (See page PC-6)

8. APPLYING ANTI-RUST AGENT

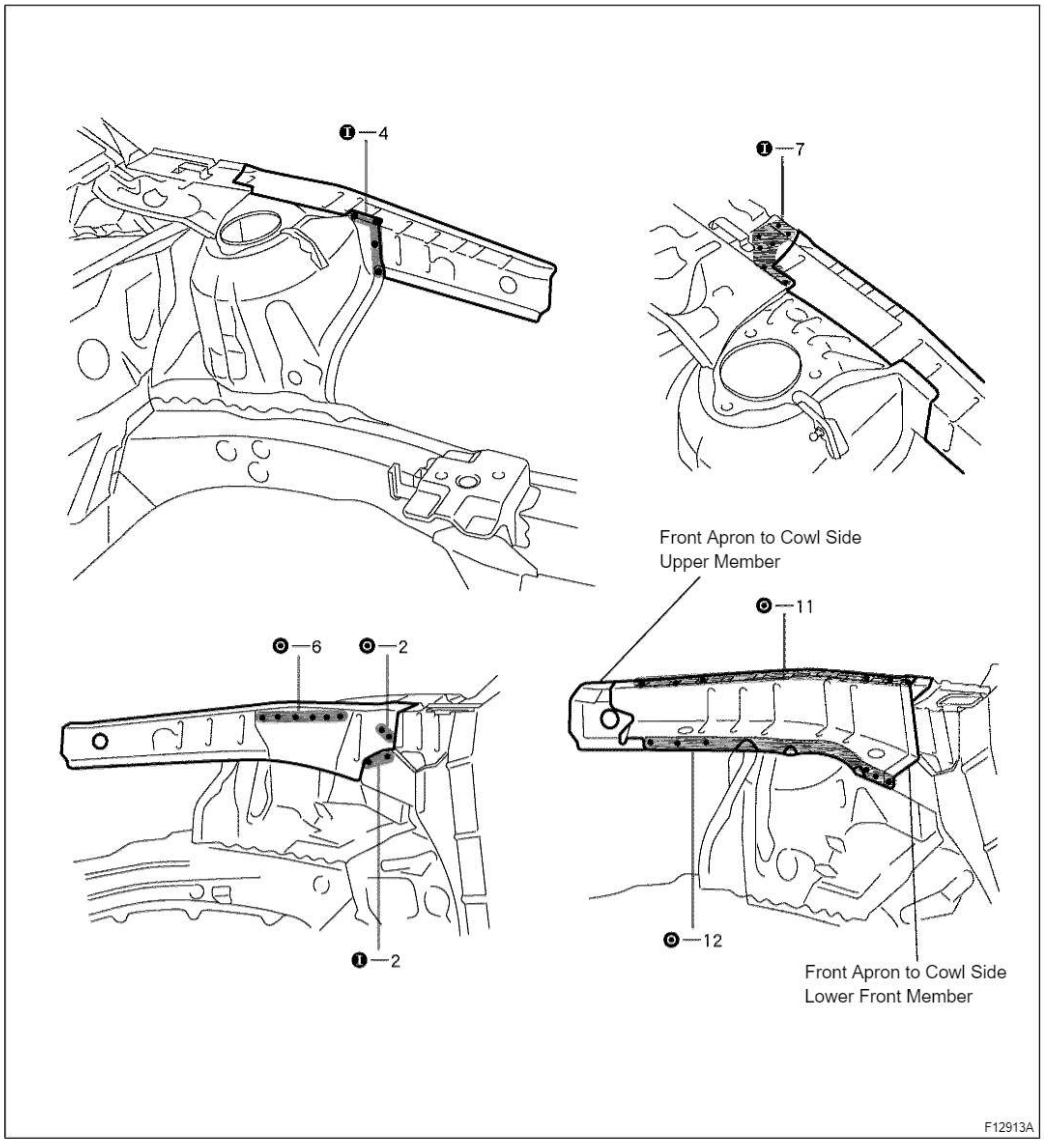
(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

FRONT APRON TO COWL SIDE UPPER MEMBER (ASSY)

REPLACEMENT

1. **REMOVE RADIATOR UPPER SUPPORT (See page BP-1)**
2. **REMOVE FRONT FENDER FRONT APRON (See page BP-14)**
3. **REMOVE FRONT BODY PILLAR LOWER GUSSET (See page BP-41)**
4. **REMOVE FRONT APRON TO COWL SIDE UPPER MEMBER**

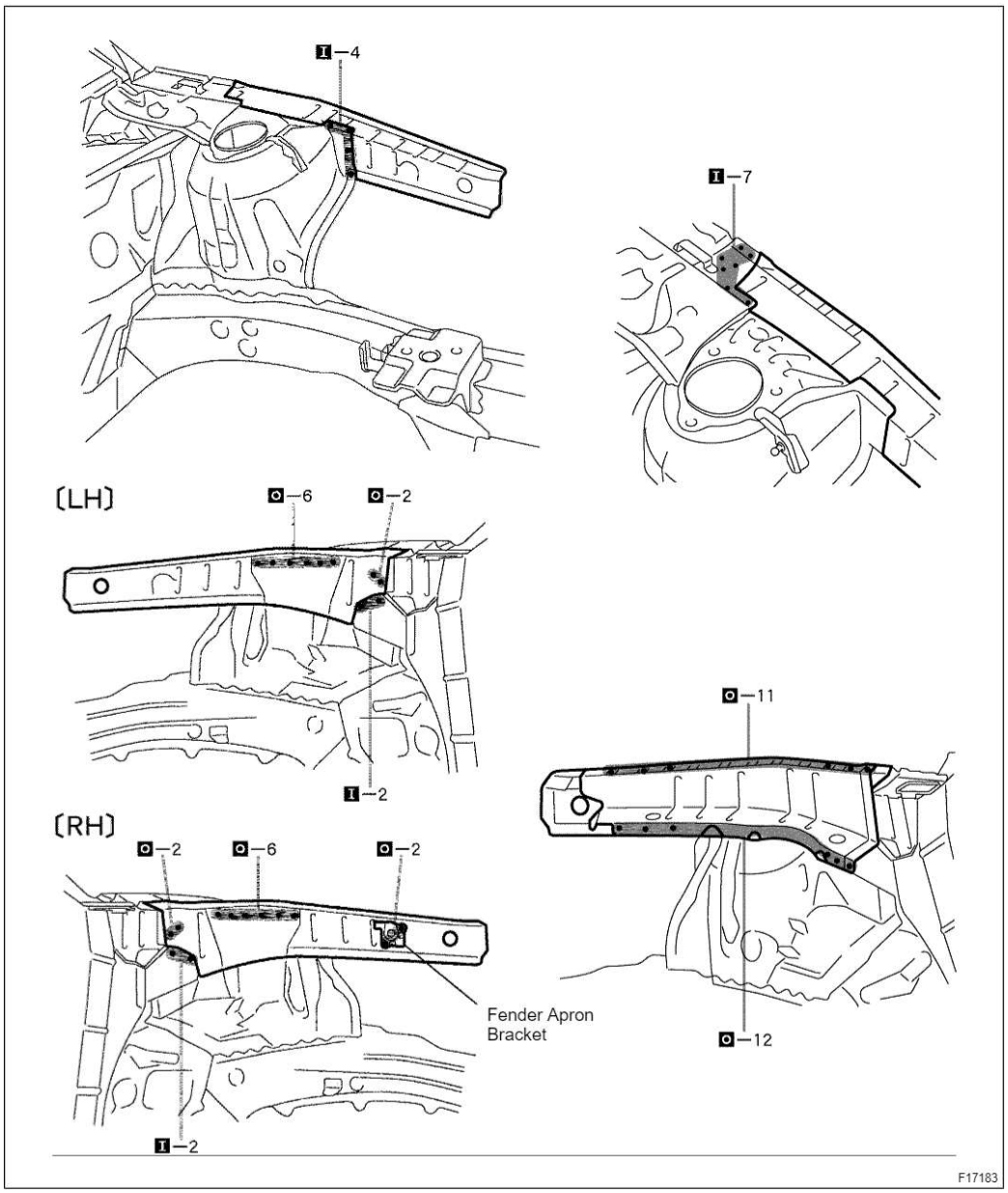
(a) After removing the front apron to cowl side lower front member, remove the front apron to cowl side upper member.



5. INSTALL FRONT APRON TO COWL SIDE UPPER MEMBER

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

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



6. **MEASURING THE ENGINE COMPARTMENT DIMENSIONS (See page BP-100)**
7. **INSTALL FRONT BODY PILLAR LOWER GUSSET (See page BP-41)**
8. **INSTALL FRONT FENDER FRONT APRON (See page BP-14)**
9. **INSTALL RADIATOR UPPER SUPPORT (See page BP-1)**
10. **APPLYING SESALER TO THE ENGINE COMPARTMENT (See apge PC-1)**
11. **APPLYING ANTI-RUST AGENT**

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

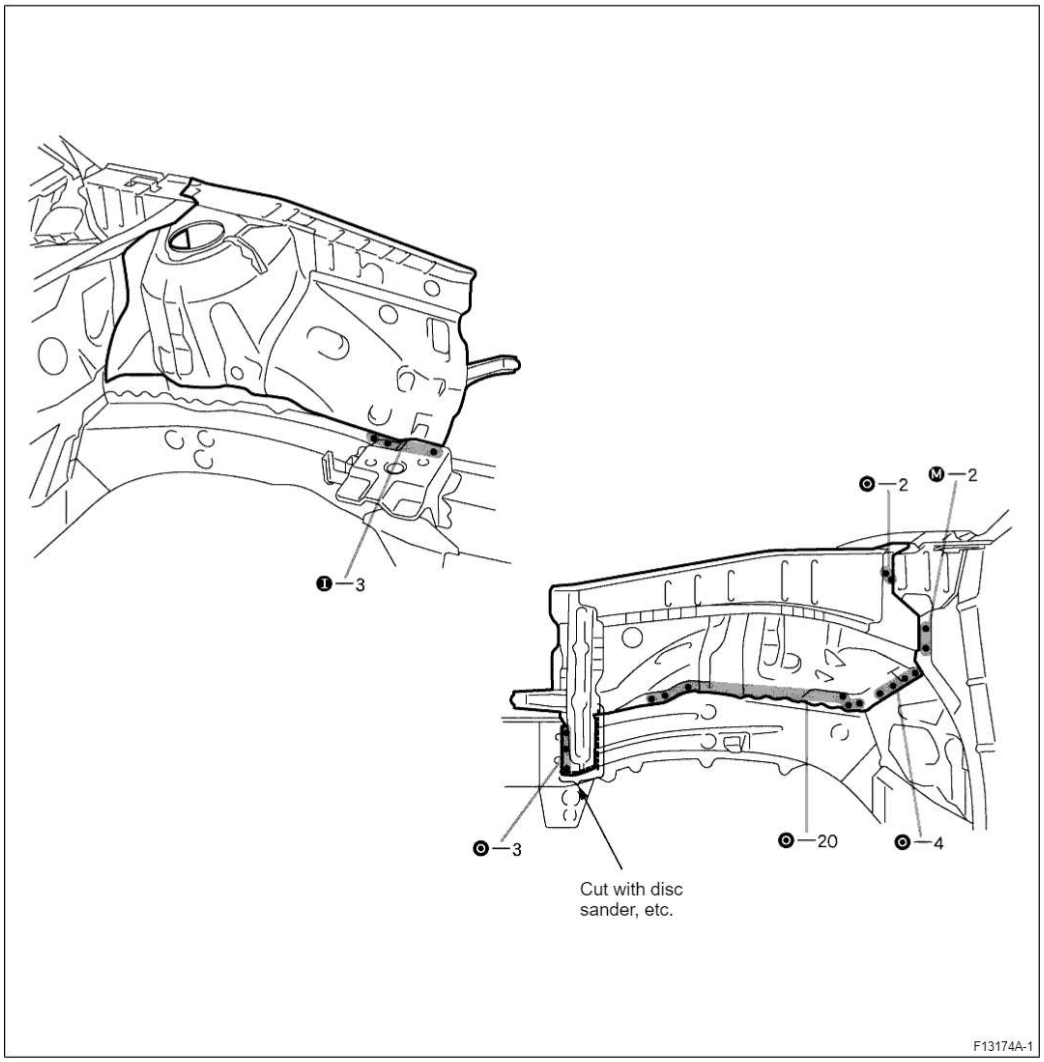
FRONT FENDER APRON (ASSY)

REPLACEMENT

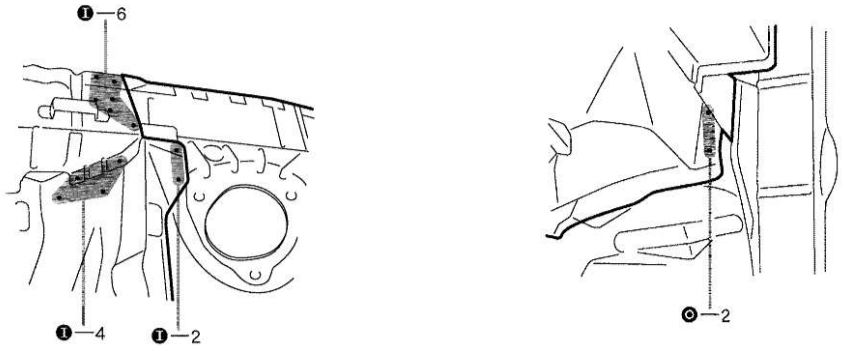
1. **REMOVE RADIATOR UPPER SUPPORT (See page BP-1)**
2. **REMOVE COWL TOP SIDE REINFORCEMENT (See page BP-39)**

   NOTICE:
   Only when removing the cowl top side reinforcement.
3. **REMOVE FRONT BODY PILLAR LOWER GUSSET (See page BP-41)**
4. **REMOVE FRONT FENDER APRON**

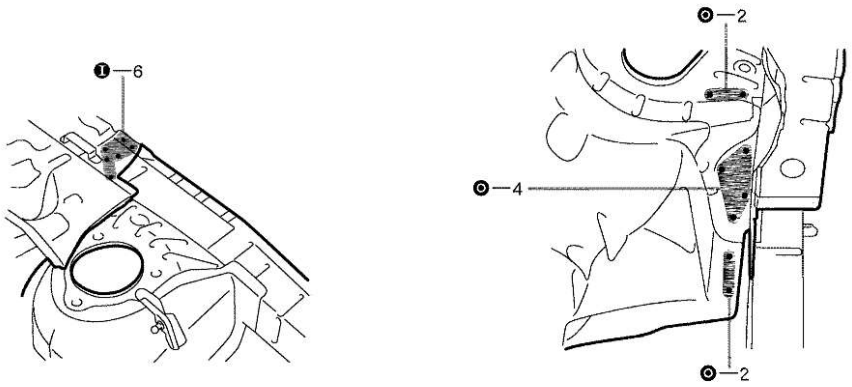
   HINT:
   Two ways of working procedures; when removing and when not removing the cowl top side reinforcement, are described.



[When removing the cowl top side reinforcement]



[When not removing the cowl top side reinforcement]



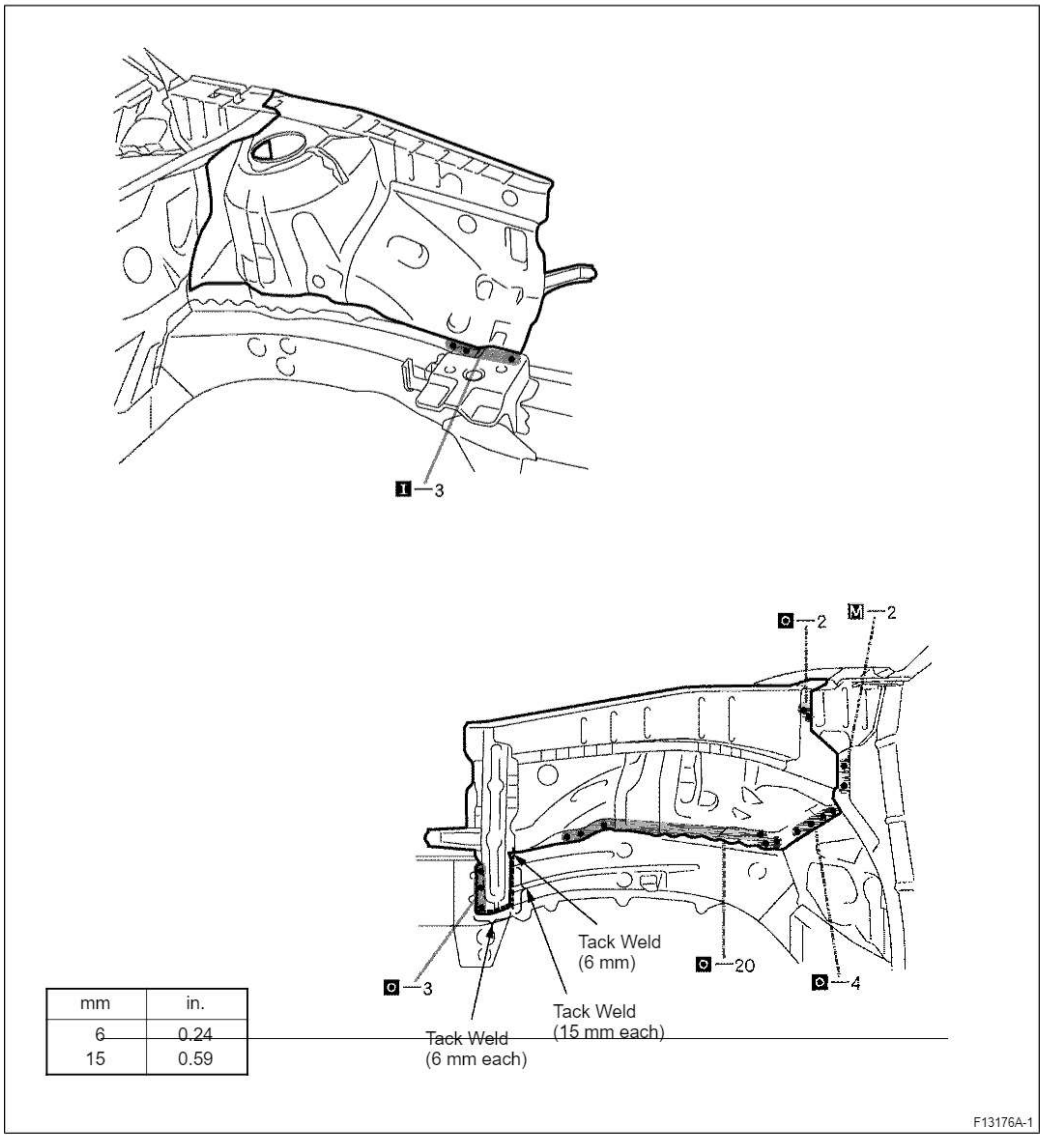
F13175A-1

5. INSTALL FRONT FENDER APRON

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

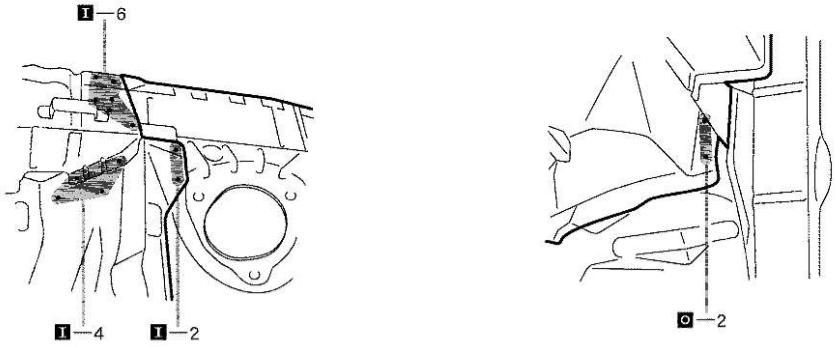
(a) Temporarily install the new parts and measure each part in accordance with the body dimension diagram.

HINT:
Make sure each measurement is correct, as this parts affects the front wheel alignment.

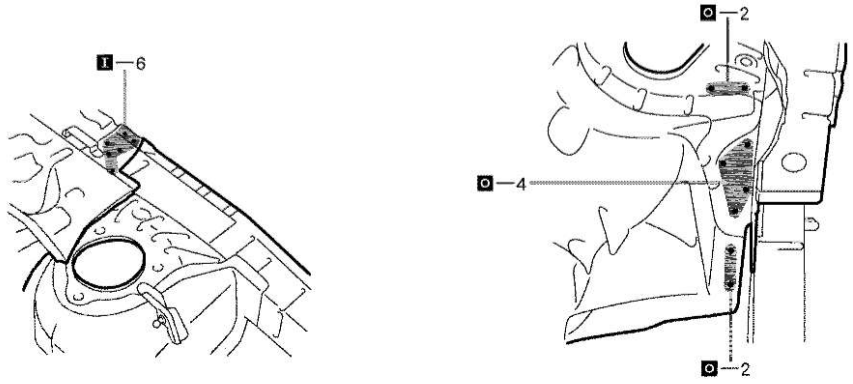


mm	in.
6	0.24
15	0.59

[When removing the cowl top side reinforcement]



[When not removing the cowl top side reinforcement]



F13177A-1

6. **MEASURING THE ENGINE COMPARTMENT DIMENSIONS** **(See page BP-100)**
7. **MEASURING THE UNDER BODY DIMENSIONS** **(See page BP-100)**
8. **INSTALL FRONT BODY PILLAR LOWER GUSSET** **(See page BP-41)**
9. **INSTALL COWL TOP SIDE REINFORCEMENT** **(See page BP-39)**
10. **INSTALL RADIATOR UPPER SUPPORT** **(See page BP-1)**
11. **APPLYING SEALER TO THE ENGINE COMPARTMENT** **(See page PC-1)**
12. **APPLYING SEALER TO THE INSIDE OF THE VEHICLE** **(See page PC-1)**
13. **APPLYING UNDER COATING** **(See page PC-6)**
14. **APPLYING ANTI-RUST AGENT**

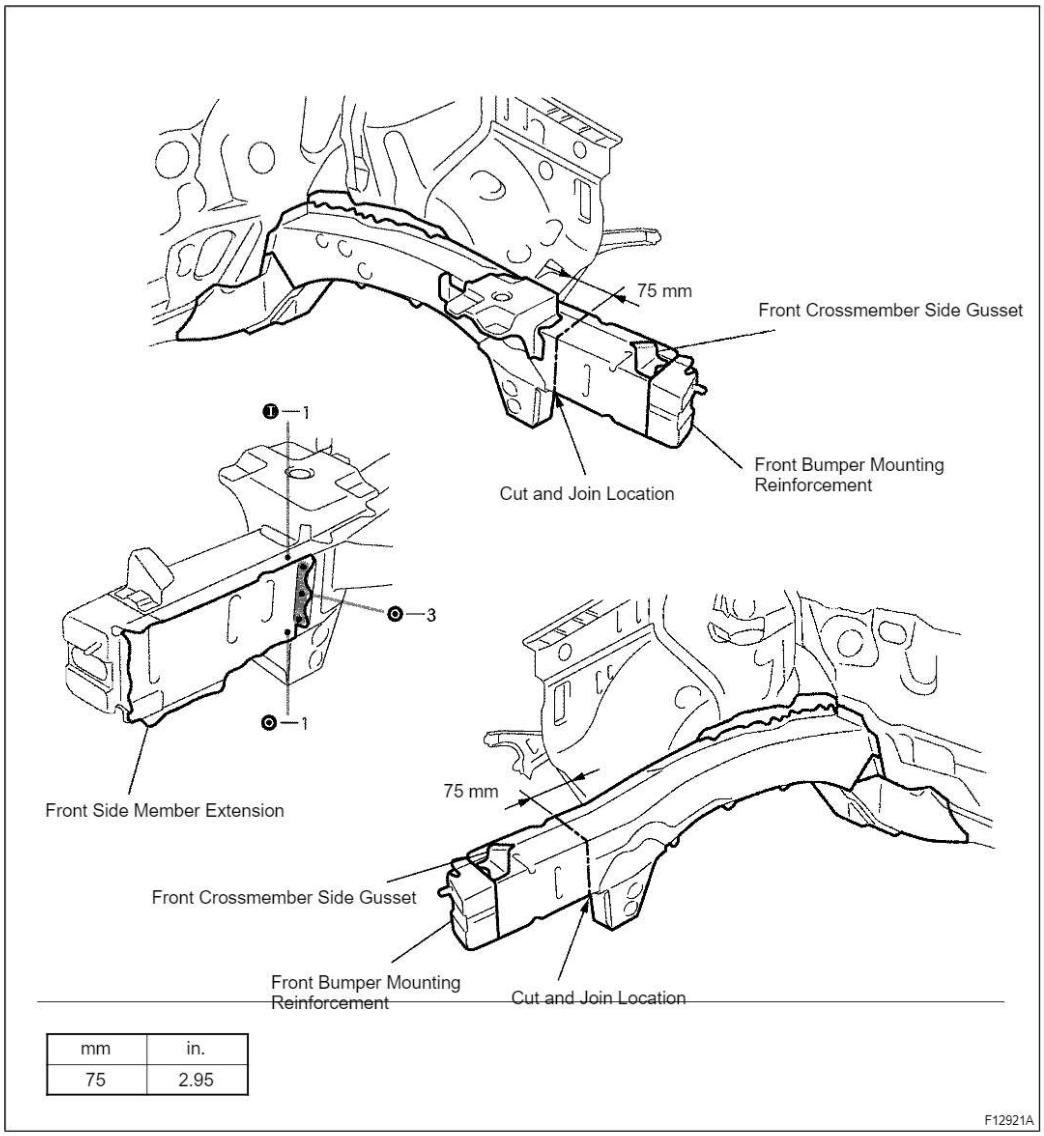
(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

FRONT SIDE MEMBER (CUT-P)

REPLACEMENT

1. **REMOVE RADIATOR UPPER SUPPORT (See page BP-1)**
2. **REMOVE RADIATOR SUPPORT UPPER BRACE (See page BP-3)**
3. **REMOVE RADIATOR SIDE SUPPORT (See page BP-5)**
4. **REMOVE FRONT CROSSMEMBER (See page BP-8)**
5. **REMOVE FRONT SIDE MEMBER**

(a) Cut and join the parts at the locations as shown below.

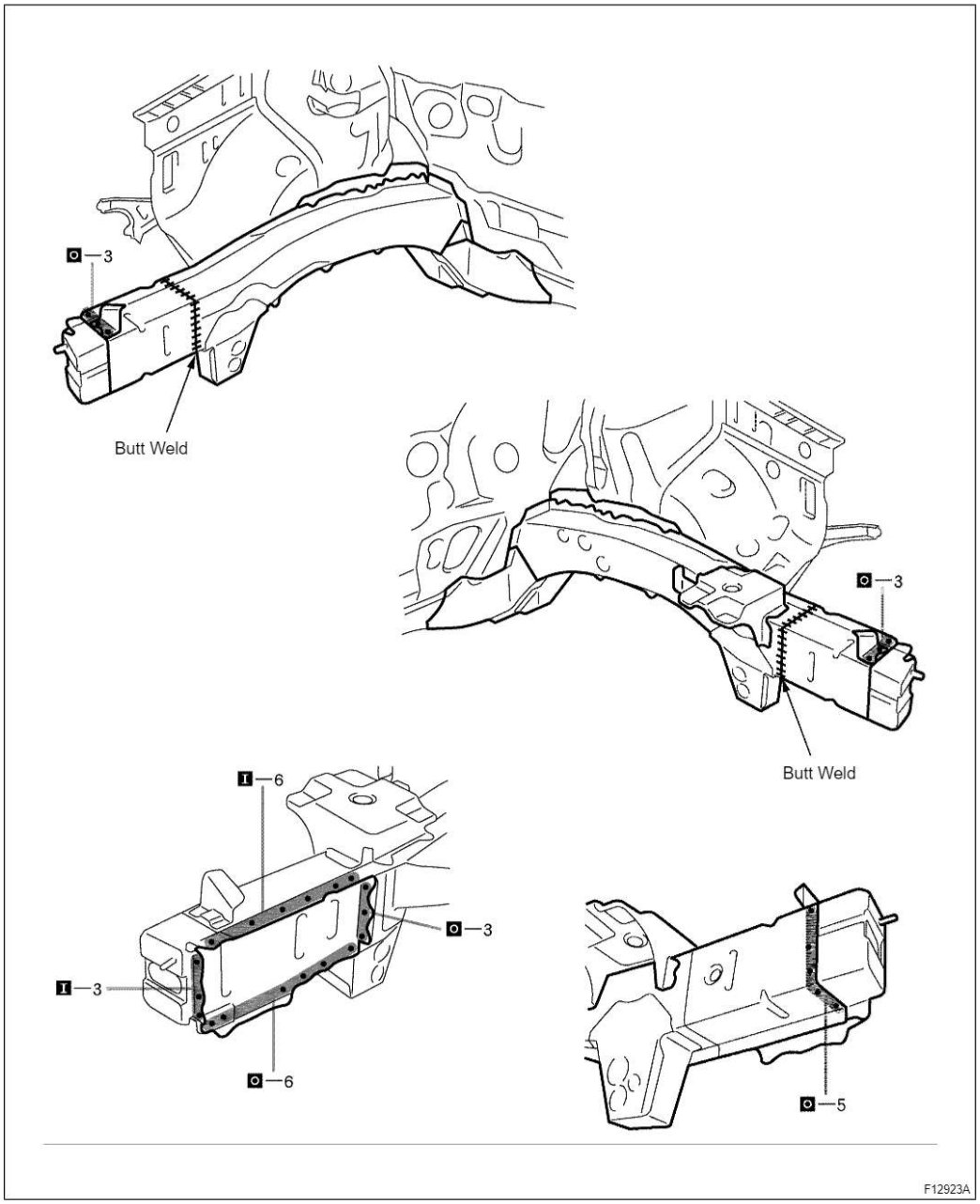


mm	in.
75	2.95

F12921A

6. INSTALL FRONT SIDE MEMBER

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



7. **MEASURING THE ENGINE COMPARTMENT DIMENSIONS (See page BP-100)**
8. **MEASURING THE UNDER BODY DIMENSIONS (See page BP-100)**
9. **INSTALL FRONT CROSSMEMBER (See page BP-8)**
10. **INSTALL RADIATOR SIDE SUPPORT (See page BP-5)**
11. **INSTALL RADIATOR SUPPORT UPPER BRACE (See page BP-3)**
12. **INSTALL RADIATOR UPPER SUPPORT (See page BP-1)**
13. **APPLYING SEALER TO THE ENGINE COMPARTMENT (See page PC-1)**
14. **APPLYING ANTI-RUST AGENT (See page PC-7)**

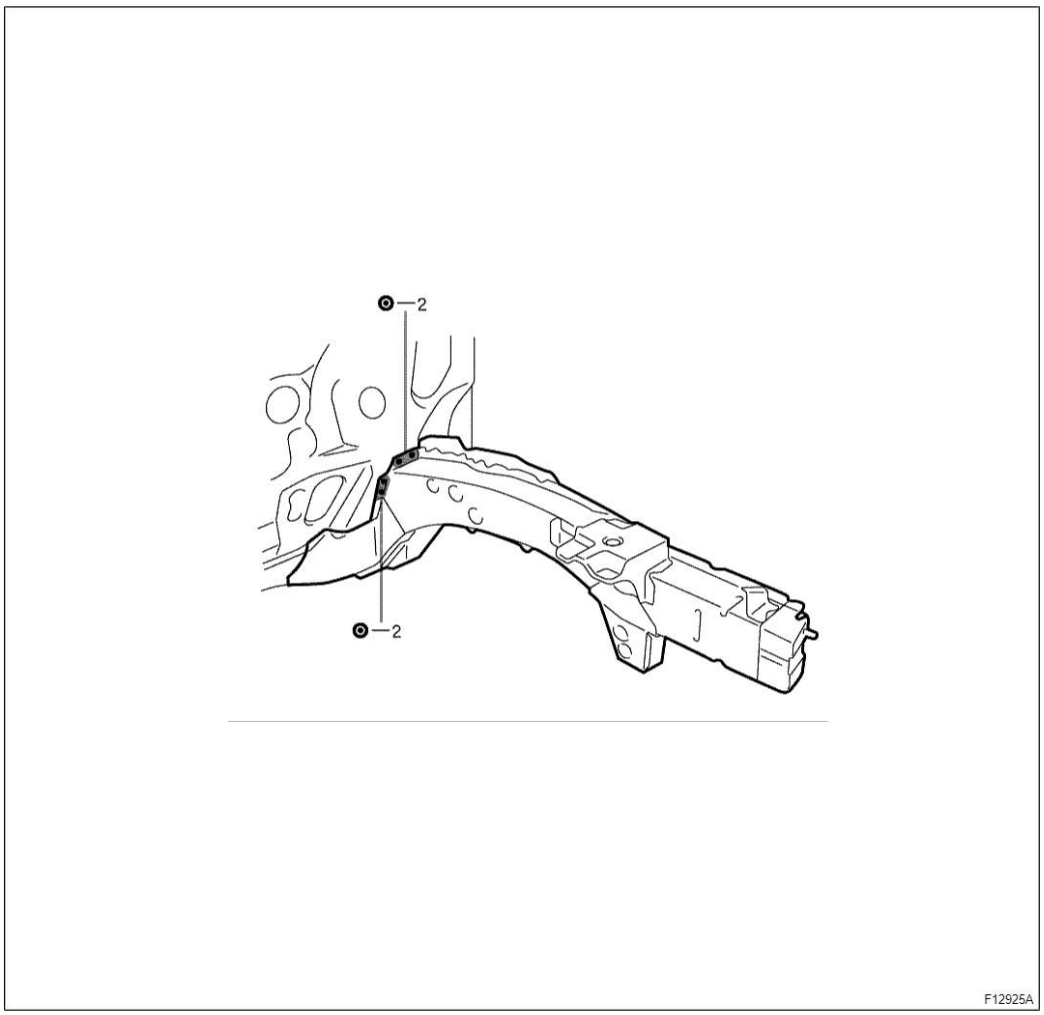
(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

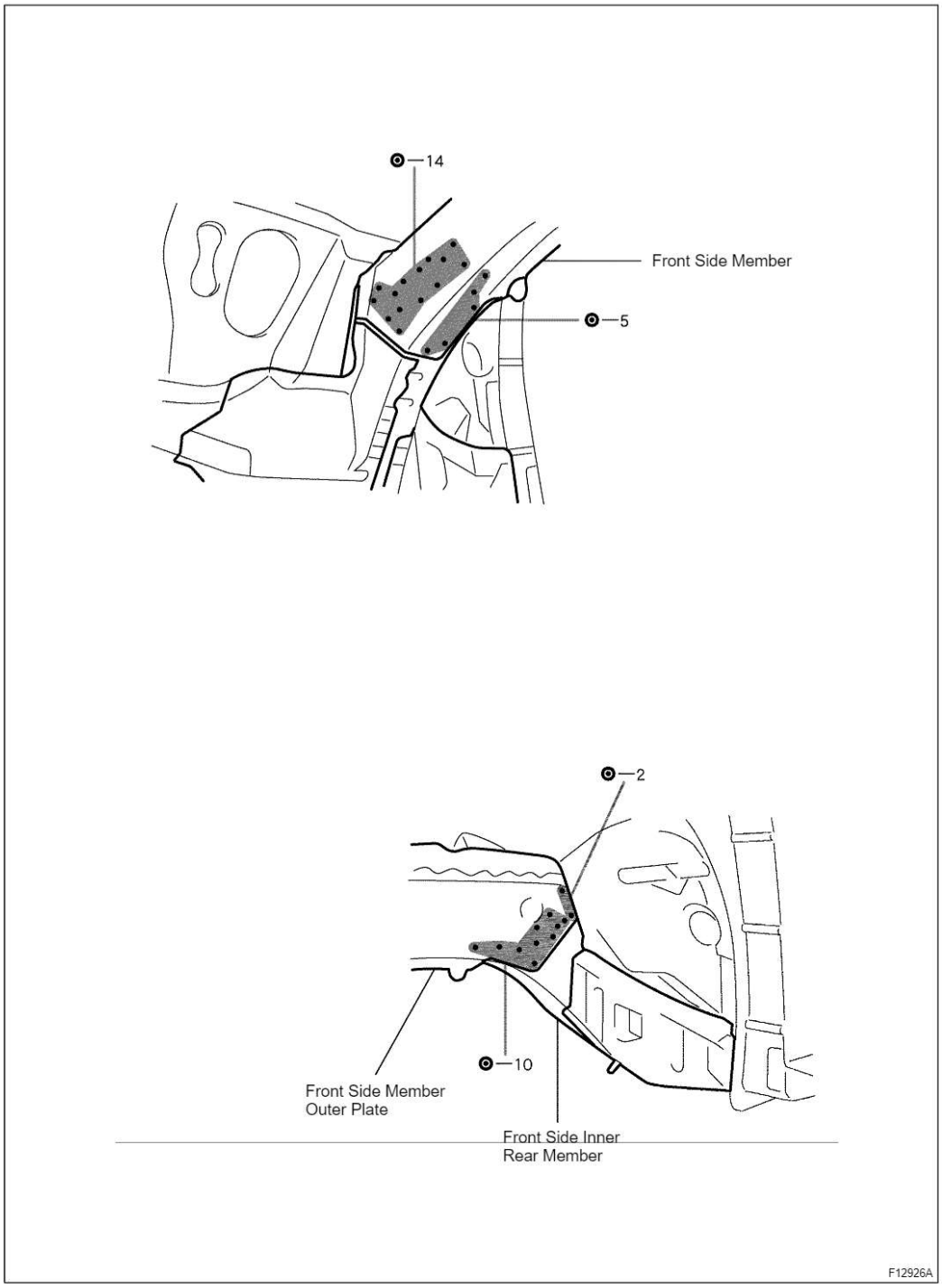
FRONT SIDE MEMBER (CUT-H): TMMK Made

REPLACEMENT

1. **REMOVE RADIATOR UPPER SUPPORT (See page BP-1)**
2. **REMOVE RADIATOR SUPPORT UPPER BRACE (See page BP-3)**
3. **REMOVE RADIATOR SIDE SUPPORT (See page BP-5)**
4. **REMOVE FRONT CROSSMEMBER (See page BP-8)**
5. **REMOVE COWL TOP SIDE REINFORCEMENT (See page BP-39)**
6. **REMOVE FRONT BODY PILLAR LOWER GUSSET (See page BP-41)**
7. **REMOVE FRONT FENDER APRON (See page BP-19)**
8. **REMOVE FRONT SIDE MEMBER**

(a) Separate the front side member, front side member outer plate and front side inner rear member at the welded part, and then remove the front side member.



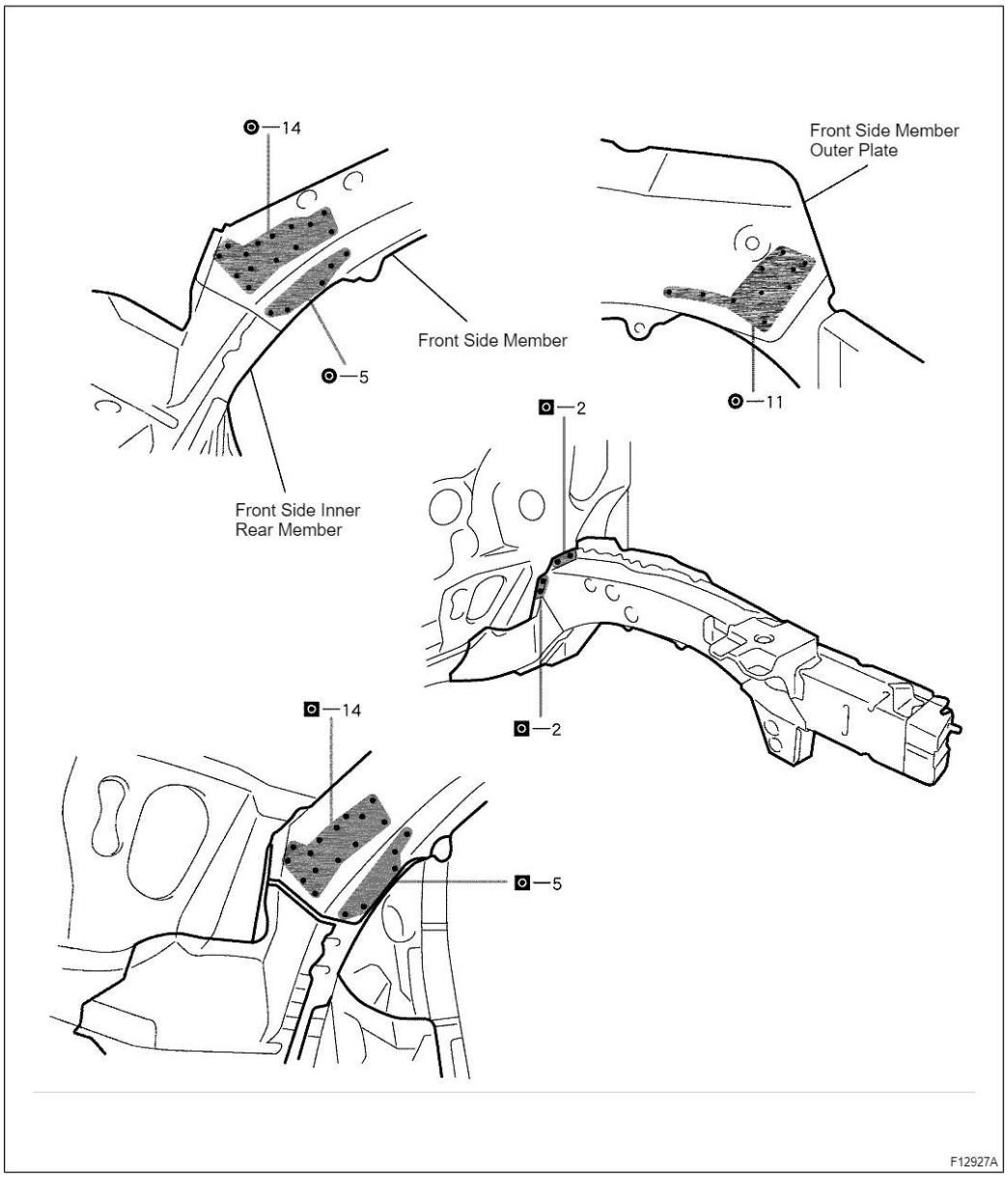

14
Front Side Member
5
2
10
Front Side Member
Outer Plate
Front Side Inner
Rear Member
F12926A

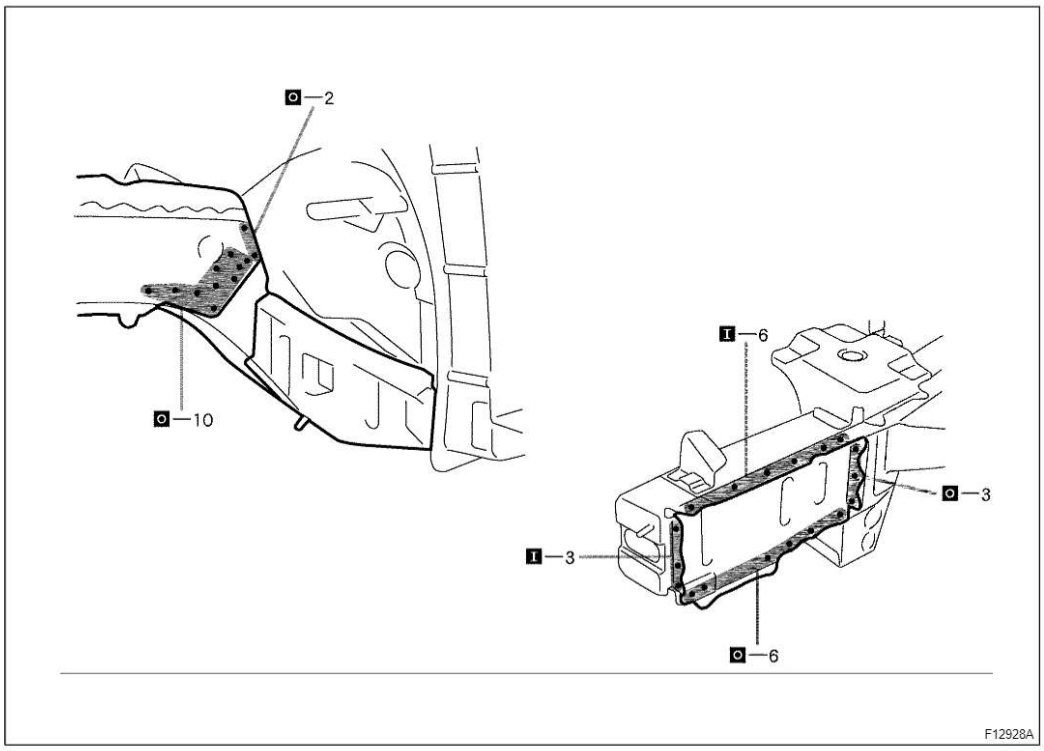
9. INSTALL FRONT SIDE MEMBER

(a) Remove the front side member and front side member outer plate from the new parts of front side member.

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

HINT:
Make sure each measurement is correct, as this parts affects the front wheel alignment.





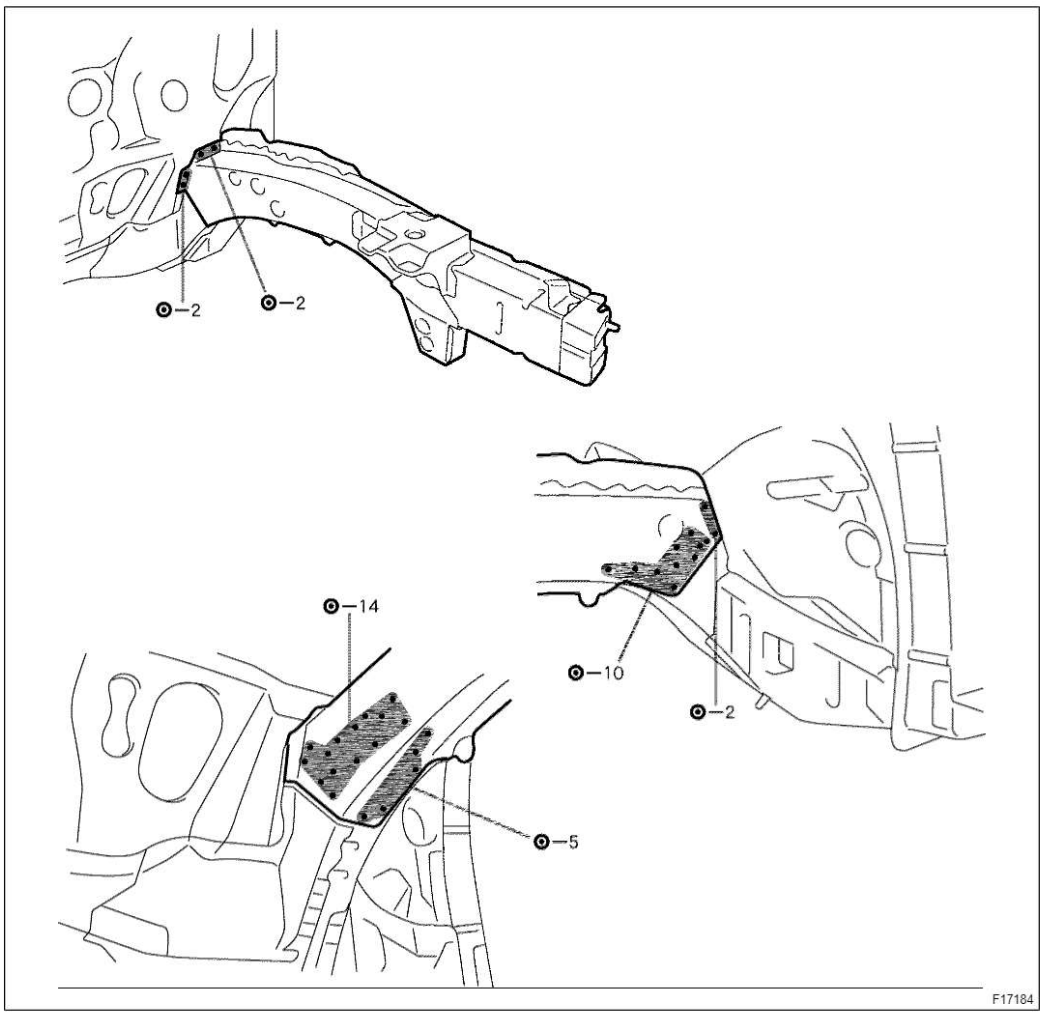
10. **MEASURING THE ENGINE COMPARTMENT DIMENSIONS (See page BP-100)**
11. **MEASURING THE UNDER BODY DIMENSIONS (See page BP-100)**
12. **INSTALL FRONT FENDER APRON (See page BP-19)**
13. **INSTALL FRONT BODY PILLAR LOWER GUSSET (See page BP-41)**
14. **INSTALL COWL TOP SIDE REINFORCEMENT (See page BP-39)**
15. **INSTALL FRONT CROSSMEMBER (See page BP-8)**
16. **INSTALL RADIATOR SIDE SUPPORT (See page BP-5)**
17. **INSTALL RADIATOR SUPPORT UPPER BRACE (See page BP-3)**
18. **INSTALL RADIATOR UPPER SUPPORT (See page BP-1)**
19. **APPLYING SEALER TO THE ENGINE COMPARTMENT (See apge PC-1)**
20. **APPLYING SEALER TO THE INSIDE OF THE VEHICLE (See page PC-2)**
21. **APPLYING UNDER COATING (See page PC-6)**
22. **APPLING ANTI-RUST AGENT**

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

FRONT SIDE MEMBER (ASSY): TMC Made

REPLACEMENT

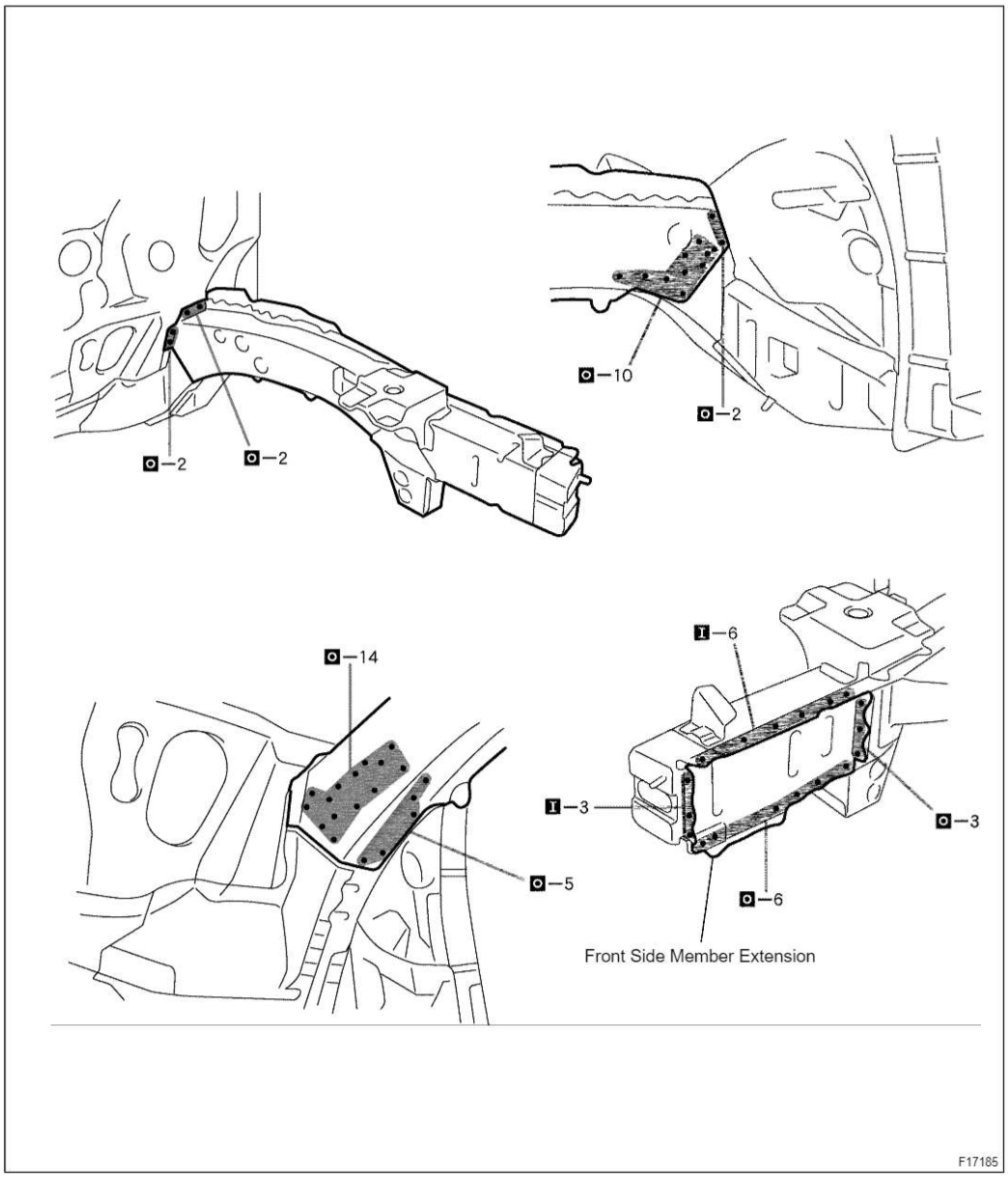
1. REMOVE RADIATOR UPPER SUPPORT (See page BP-1)
2. REMOVE RADIATOR SUPPORT UPPER BRACE (See page BP-3)
3. REMOVE RADIATOR SIDE SUPPORT (See page BP-5)
4. REMOVE FRONT CROSSMEMBER (See page BP-8)
5. REMOVE COWL TOP SIDE REINFORCEMENT (See page BP-39)
6. REMOVE FRONT BODY PILLAR LOWER GUSSET (See page BP-41)
7. REMOVE FRONT FENDER APRON (See page BP-19)
8. REMOVE FRONT SIDE MEMBER



9. INSTALL FRONT SIDE MEMBER

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

HINT:
Make sure each measurement is correct, as this parts affects the front wheel alignment.



10. **MEASURING THE ENGINE COMPARTMENT DIMENSIONS** (See page BP-100)
11. **MEASURING THE UNDER BODY DIMENSIONS** (See page BP-100)
12. **INSTALL FRONT FENDER APRON** (See page BP-19)
13. **INSTALL FRONT BODY PILLAR LOWER GUSSET** (See page BP-41)
14. **INSTALL COWL TOP SIDE REINFORCEMENT** (See page BP-39)
15. **INSTALL FRONT CROSSMEMBER** (See page BP-8)
16. **INSTALL RADIATOR SIDE SUPPORT** (See page BP-5)
17. **INSTALL RADIATOR SUPPORT UPPER BRACE** (See page BP-3)
18. **INSTALL RADIATOR UPPER SUPPORT** (See page BP-1)
19. **APPLYING SEALER TO THE ENGINE COMPARTMENT** (See apge PC-1)
20. **APPLYING SEALER TO THE INSIDE OF THE VEHICLE** (See page PC-2)
21. **APPLYING UNDER COATING** (See page PC-6)
22. **APPLING ANTI-RUST AGENT**

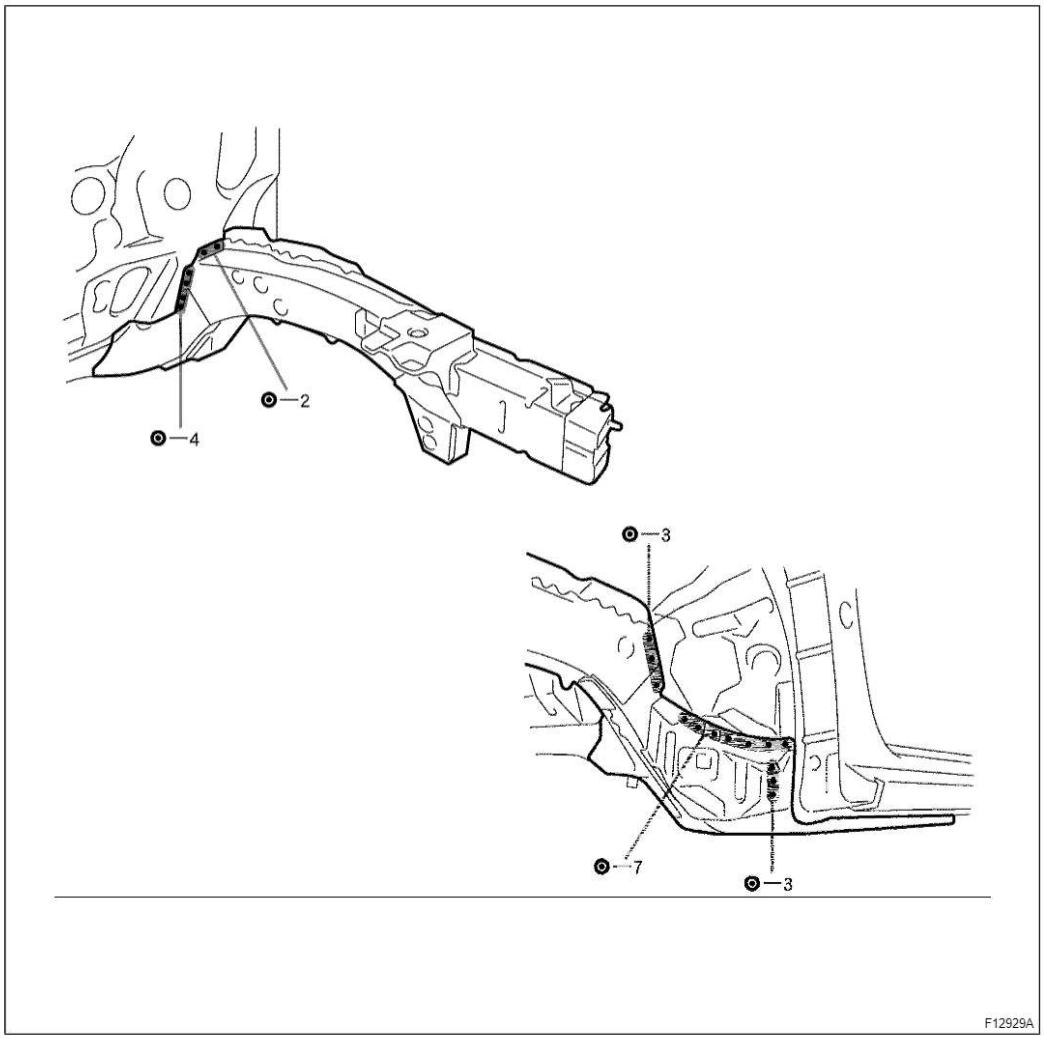
(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

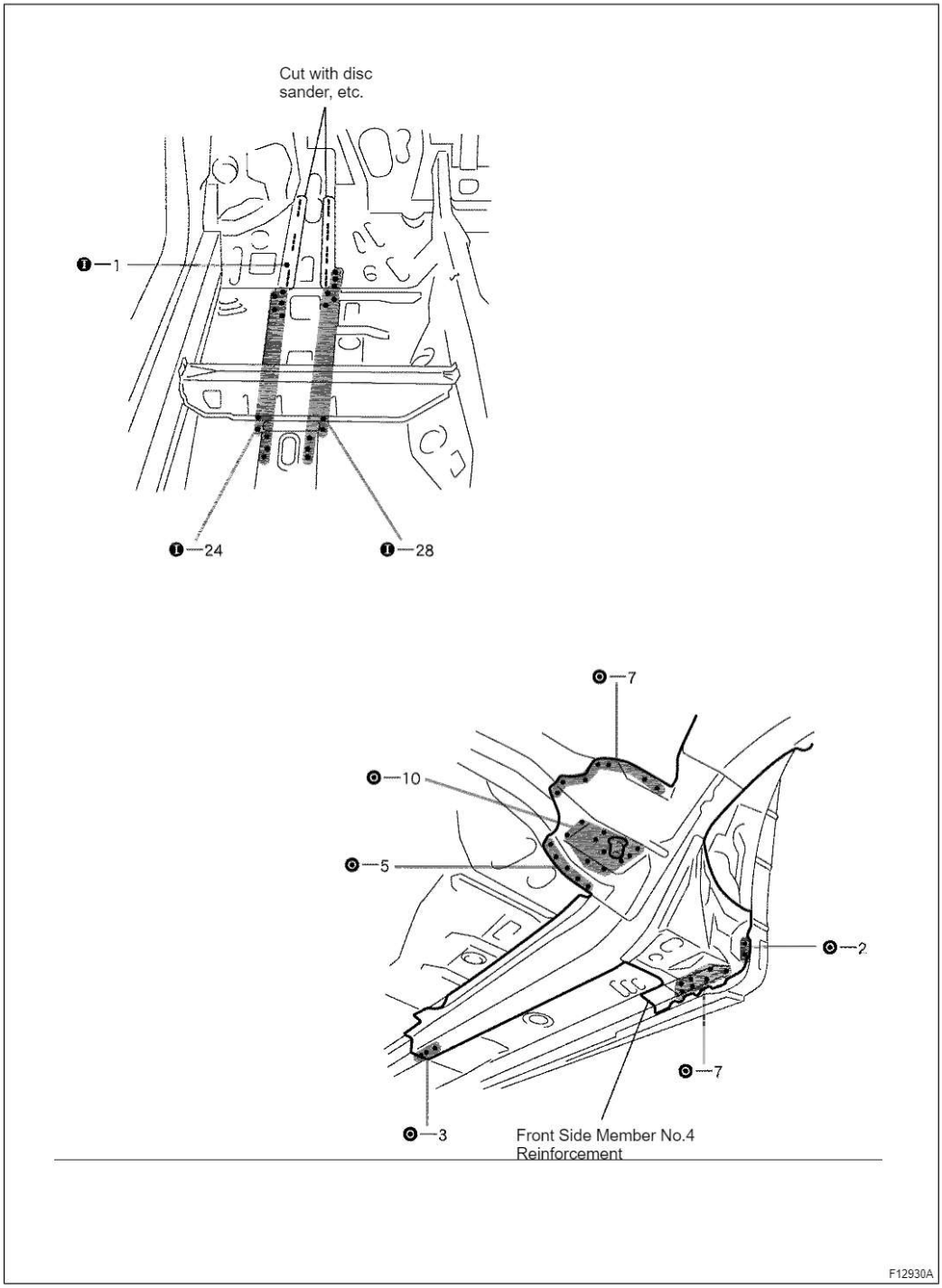
FRONT SIDE MEMBER (ASSY): TMMK Made

REPLACEMENT

1. REMOVE RADIATOR UPPER SUPPORT (See page BP-1)
2. REMOVE RADIATOR SUPPORT UPPER BRACE (See page BP-3)
3. REMOVE RADIATOR SIDE SUPPORT (See page BP-5)
4. REMOVE FRONT CROSSMEMBER (See page BP-8)
5. REMOVE COWL TOP SIDE REINFORCEMENT (See page BP-39)
6. REMOVE FRONT BODY PILLAR LOWER GUSSET (See page BP-41)
7. REMOVE FRONT FENDER APRON (See page BP-19)
8. REMOVE FRONT SIDE MEMBER

(a) Leave the floor side member No.4 reinforcement to the vehicle, remove the front side member.



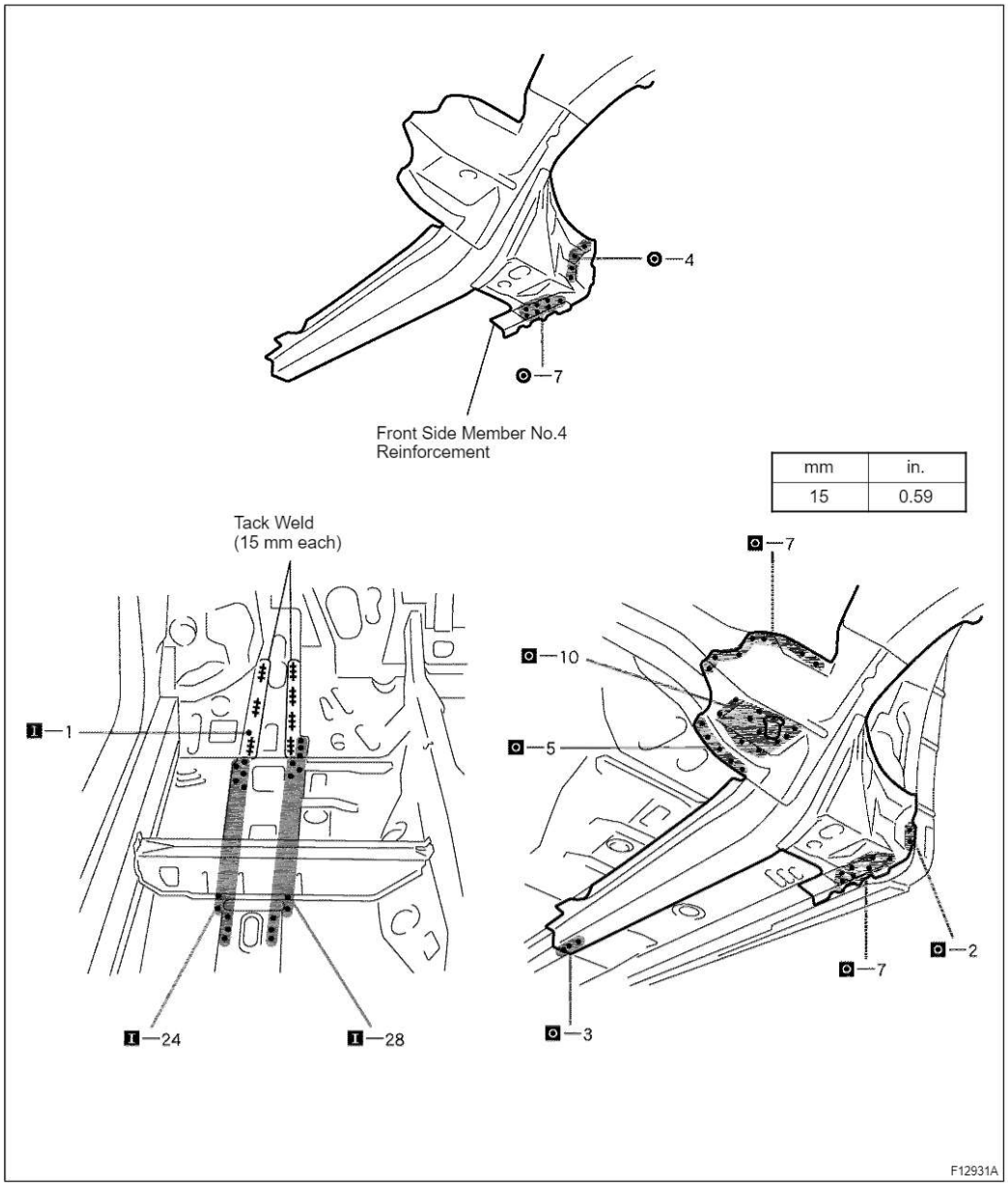

Cut with disc sander, etc.
1
24
28
7
10
5
2
7
3
Front Side Member No.4 Reinforcement
F12930A

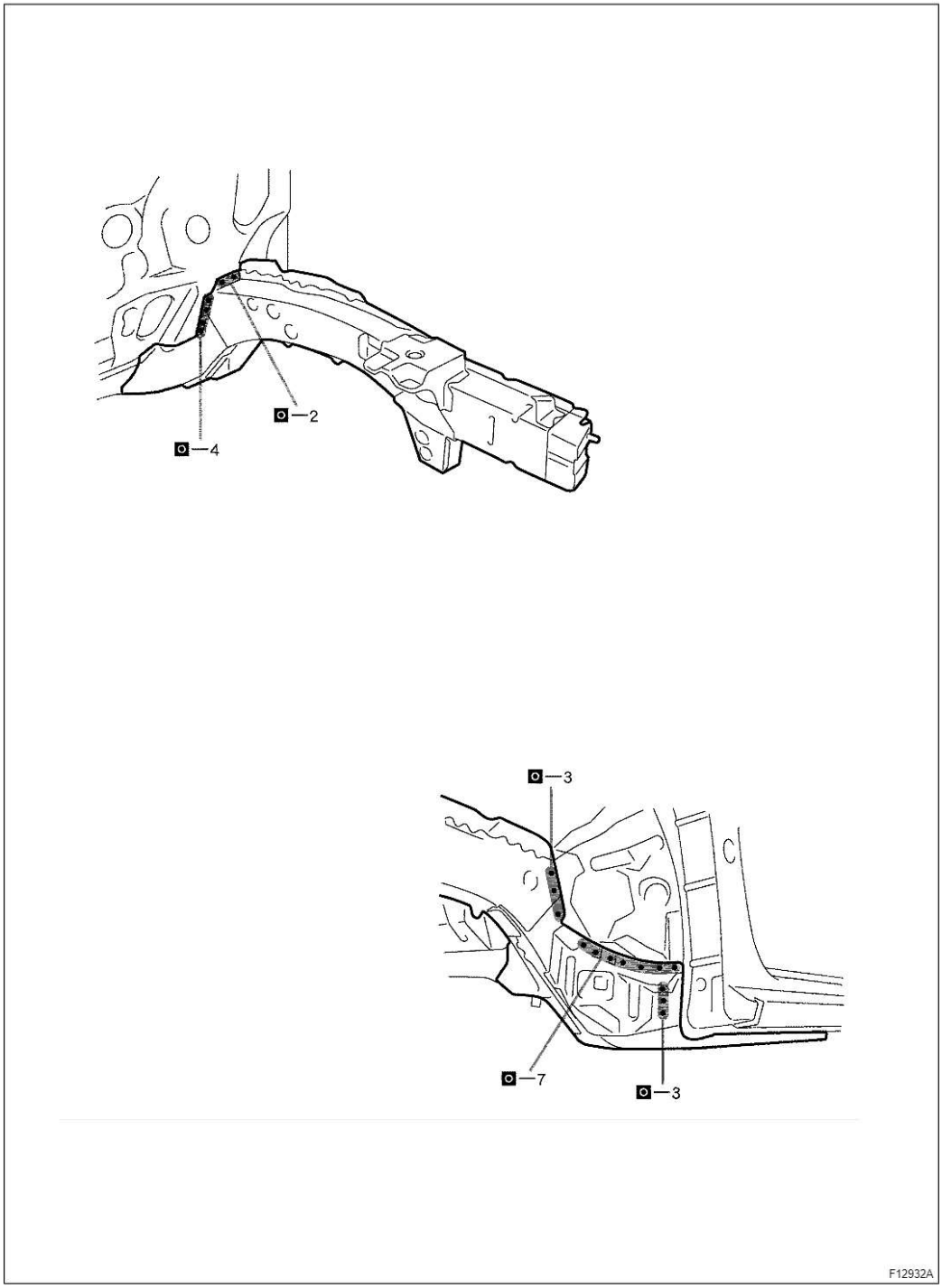
9. INSTALL FRONT SIDE MEMBER

(a) Remove the floor side member No.4 reinforcement from the new parts of front side member.

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

HINT:
Make sure each measurement is correct, as this parts affects the front wheel alignment.




2
4
3
7
3
F12932A

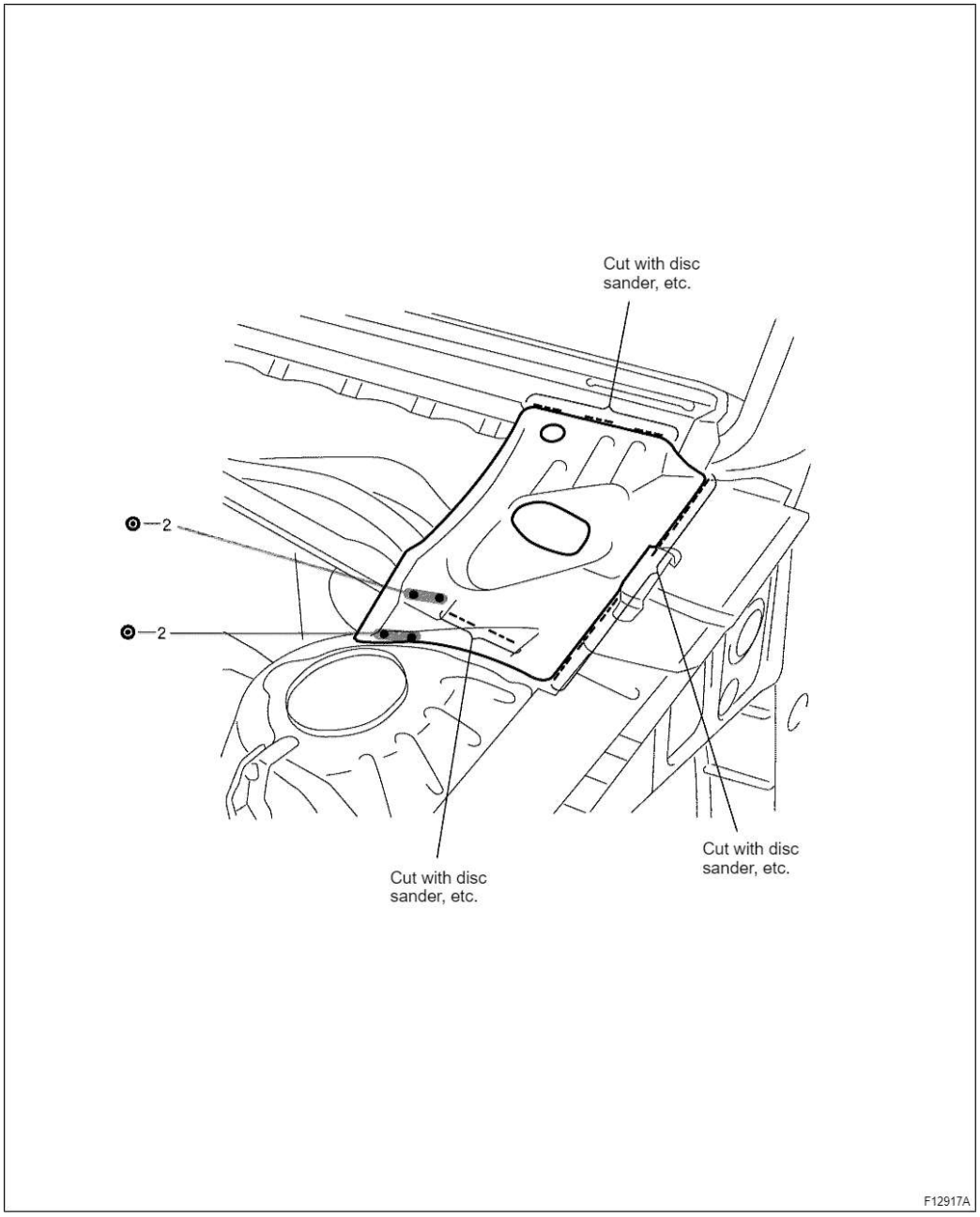
10. **MEASURING THE ENGINE COMPARTMENT DIMENSIONS** (See page BP-100)
11. **MEASURING THE UNDER BODY DIMENSIONS** (See page BP-100)
12. **INSTALL FRONT FENDER APRON** (See page BP-19)
13. **INSTALL FRONT BODY PILLAR LOWER GUSSET** (See page BP-41)
14. **INSTALL COWL TOP SIDE REINFORCEMENT** (See page BP-39)
15. **INSTALL FRONT CROSSMEMBER** (See page BP-8)
16. **INSTALL RADIATOR SIDE SUPPORT** (See page BP-5)
17. **INSTALL RADIATOR SUPPORT UPPER BRACE** (See page BP-3)
18. **INSTALL RADIATOR UPPER SUPPORT** (See page BP-1)
19. **APPLYING SEALER TO THE ENGINE COMPARTMENT** (See page PC-1)
20. **APPLYING SEALER TO THE INSIDE OF THE VEHICLE** (See page PC-2)
21. **APPLYING UNDER COATING** (See page PC-6)
22. **INSTALL FRONT FLOOR SILENCER SHEET** (See page PC-10)
23. **APPLYING ANTI-RUST AGENT**

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

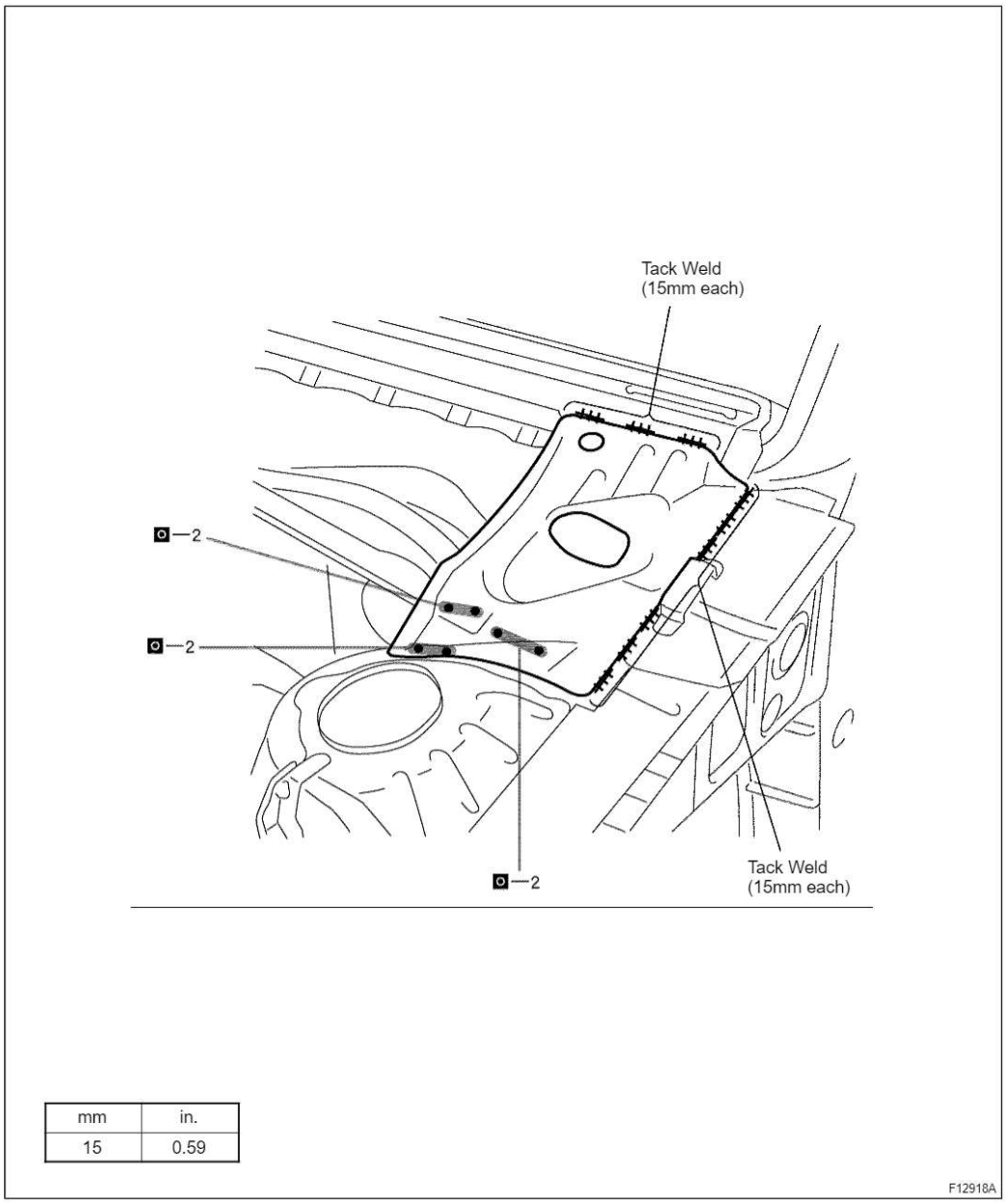
COWL TOP SIDE REINFORCEMENT (ASSY)

REPLACEMENT

1. REMOVE COWL TOP SIDE REINFORCEMENT



2. INSTALL COWL TOP SIDE REINFORCEMENT



mm	in.
15	0.59

3. APPLYING SEALER TO THE ENGINE COMPARTMENT (See page PC-1)

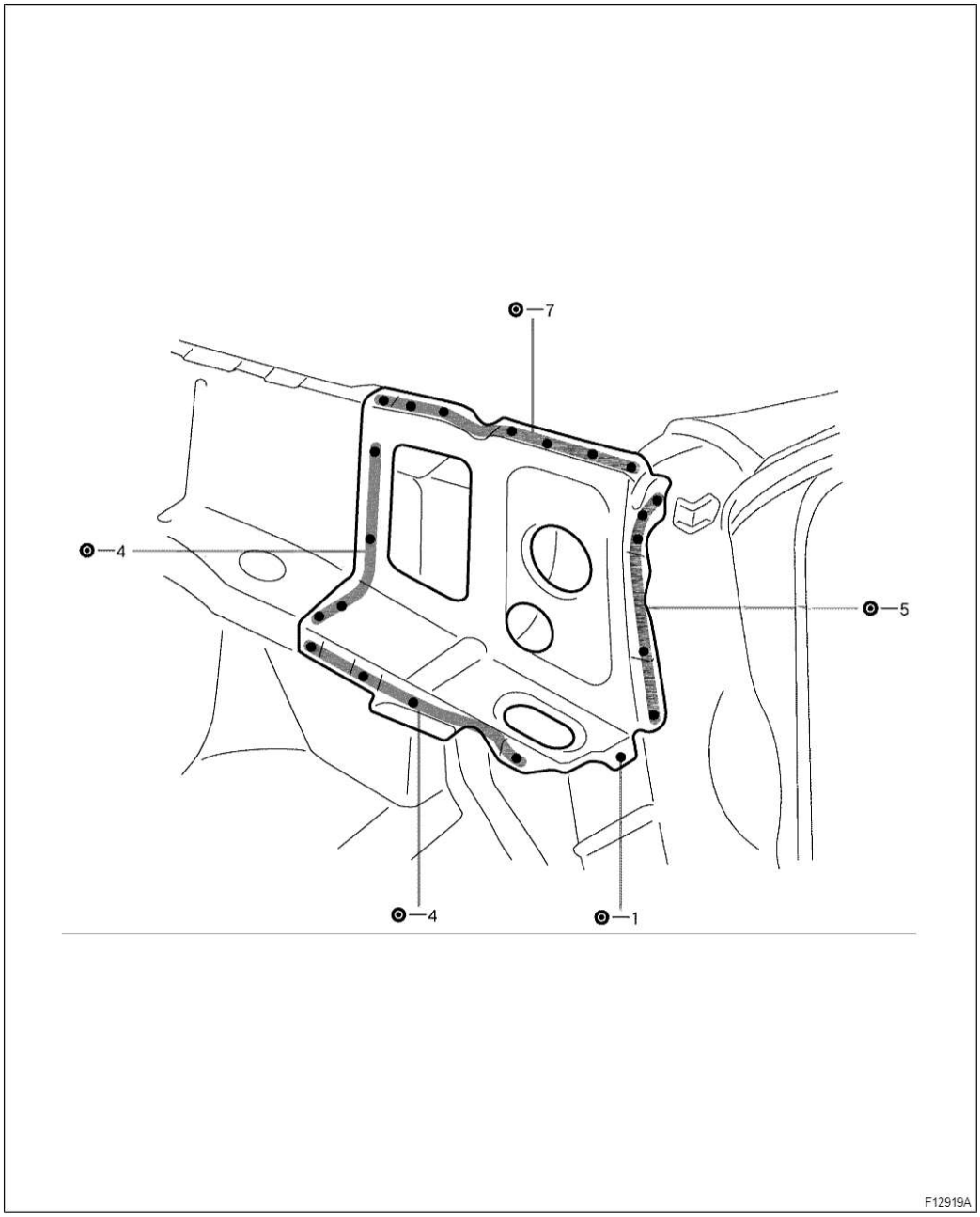
4. APPLYING ANTI-RUST AGENT

(a) After applying the top coat layer, apply the anit-rust agent to the inside of the necked section structural weld spots.

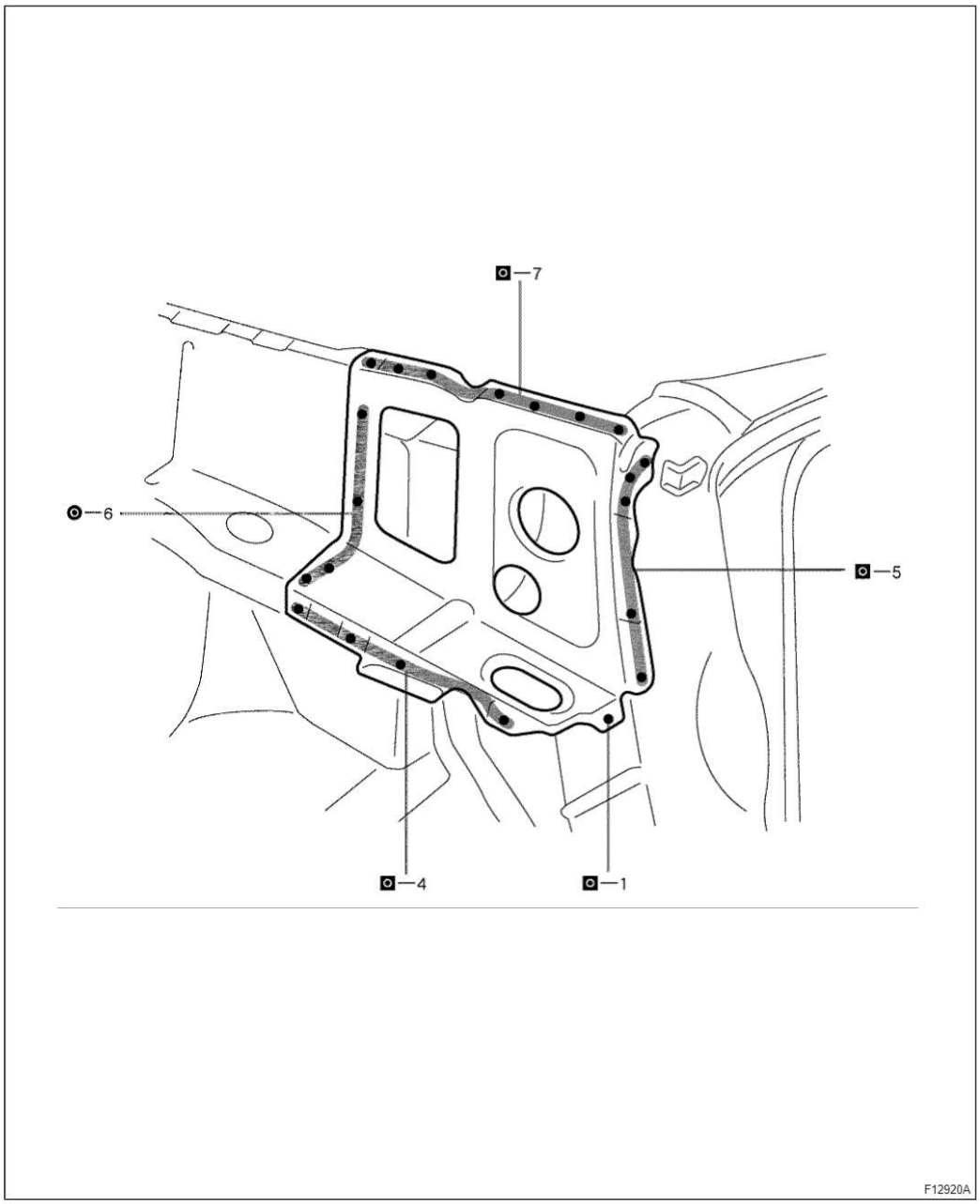
FRONT BODY PILLAR LOWER GUSSET (ASSY)

REPLACEMENT

1. REMOVE FRONT BODY PILLAR LOWER GUSSET



2. INSTALL FRONT BODY PILLAR LOWER GUSSET



3. APPLYING ANTI-RUST AGENT

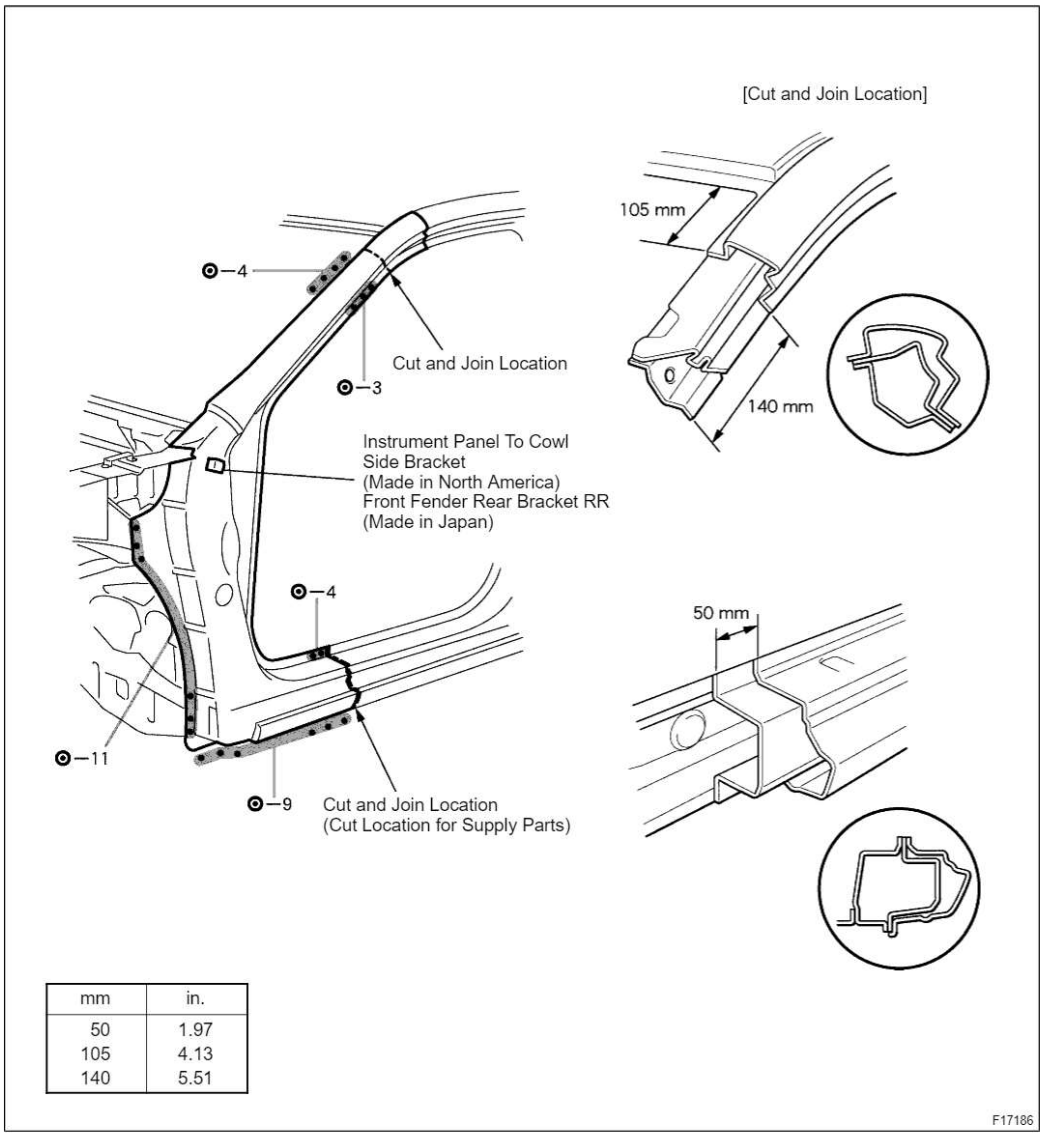
(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

FRONT BODY PILLAR (CUT)

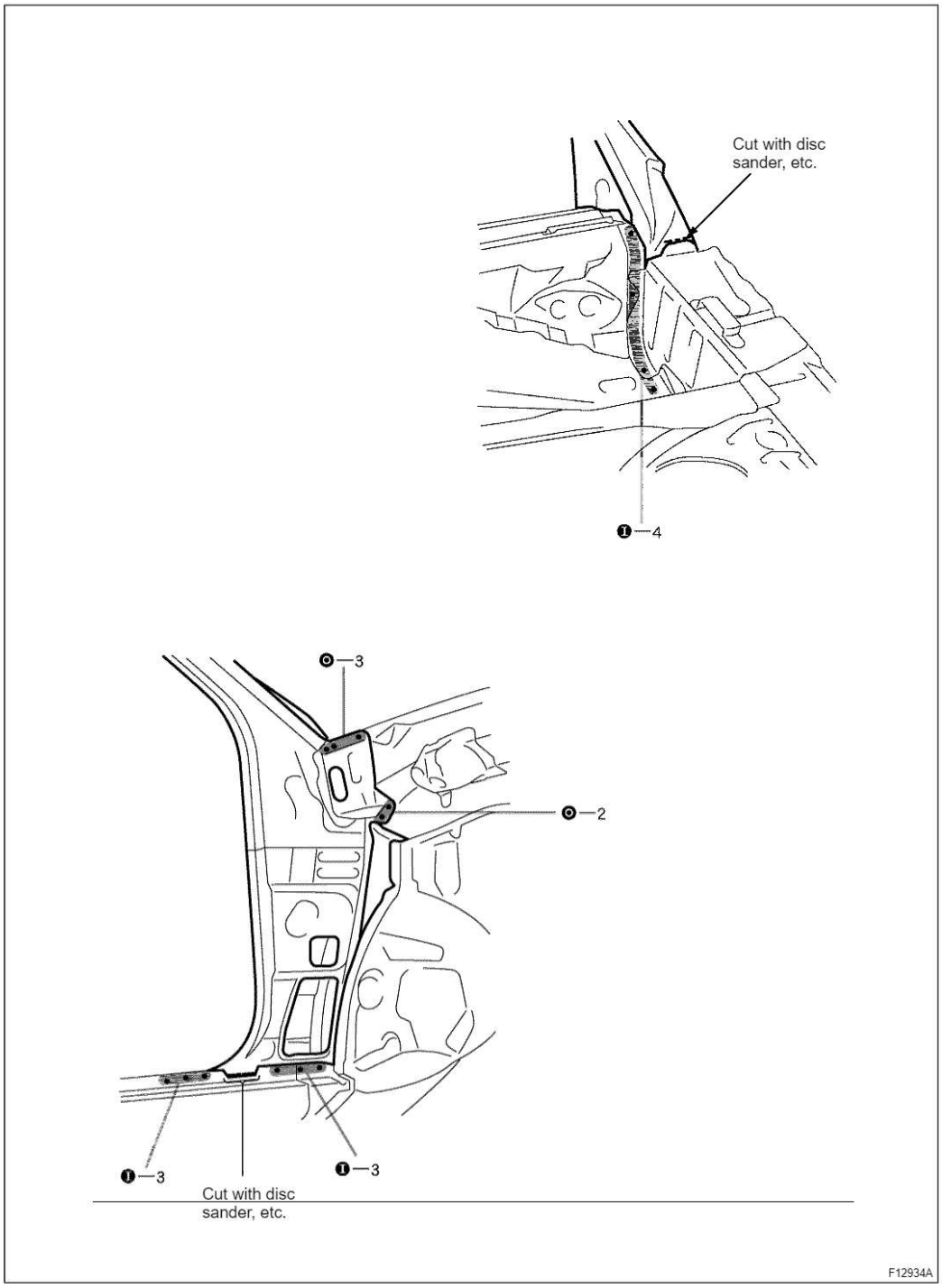
REPLACEMENT

1. **REMOVE COWL TOP SIDE REINFORCEMENT (See page BP-39)**
2. **REMOVE FRONT BODY PILLAR LOWER GUSSET (See page BP-41)**
3. **REMOVE FRONT BODY PILLAR**

(a) Cut and join the parts at the locations as shown below.
HINT:
- Shift the each cut and join locations of the outer panel, pillar reinforcement and inner pillar.



mm	in.
50	1.97
105	4.13
140	5.51


Cut with disc sander, etc.
1 4
3
2
1 3
1 3
Cut with disc sander, etc.
F12934A

4. INSTALL FRONT BODY PILLAR

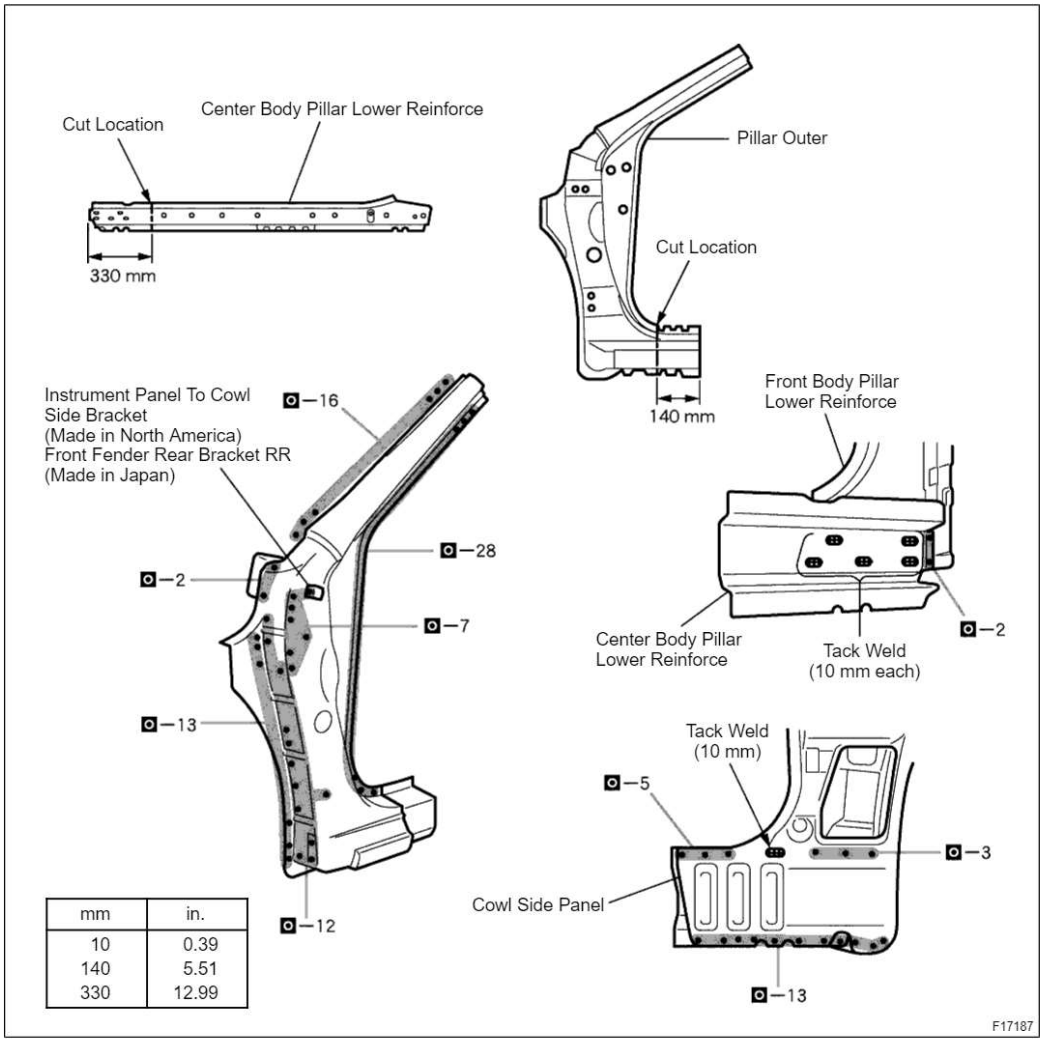
HINT:
Inspect the fitting of the front door, front fender and windshield glass, etc., before welding, since this affects the appearance of the finish.

(a) Cut the new parts for the center body pillar lower reinforece and outer panel at the location as shown below.

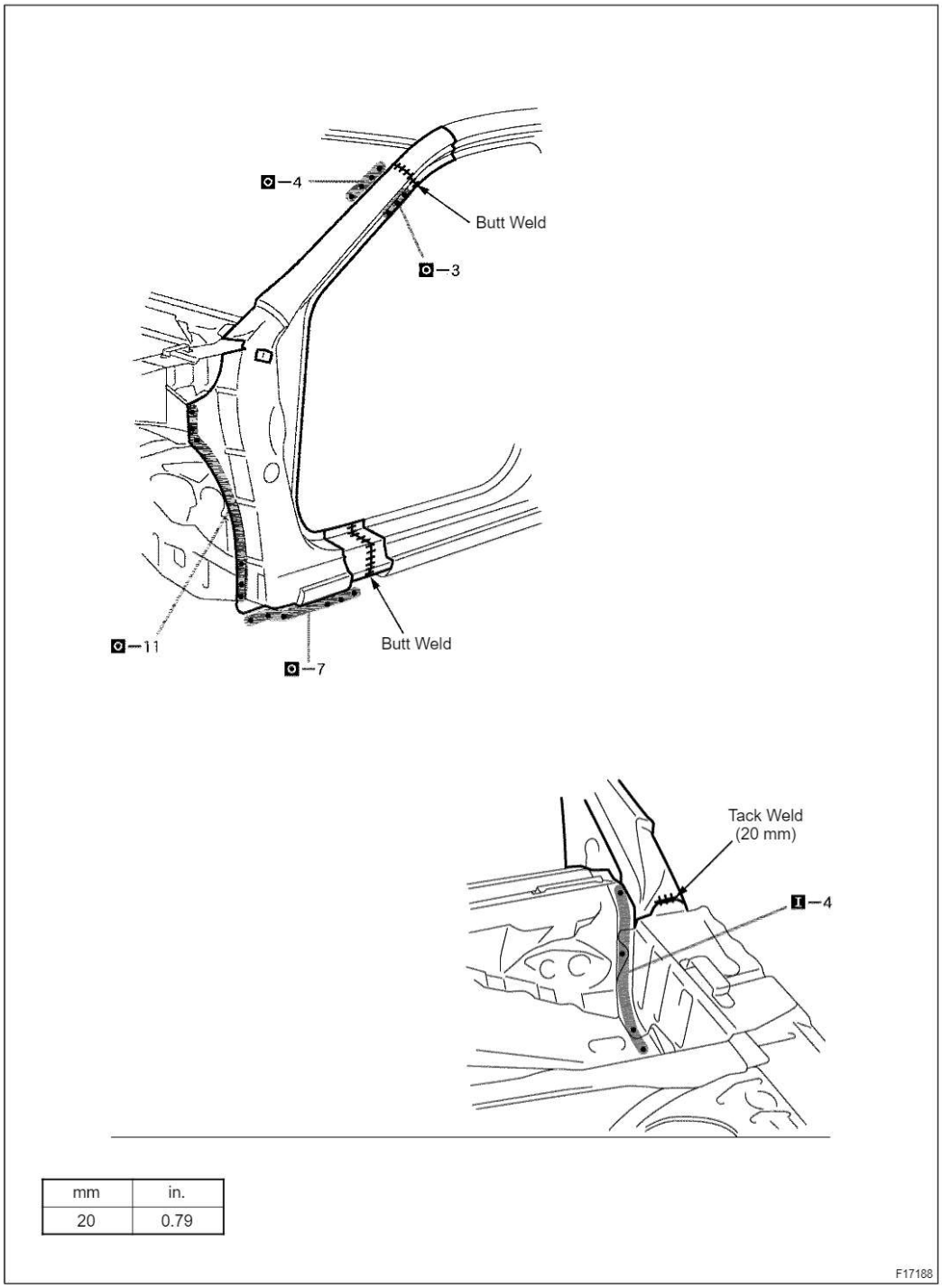
HINT:
Cut the rocker panel 140 mm (5.51 in.) from it cut and join location and after butt welding the center body pillar lower, attach the outer panel.

(b) Before temporarily installing the new parts, weld the front body pillar lower reinforce, center body pillar lower reinforce, cowl side panel and outer panel with standard points.

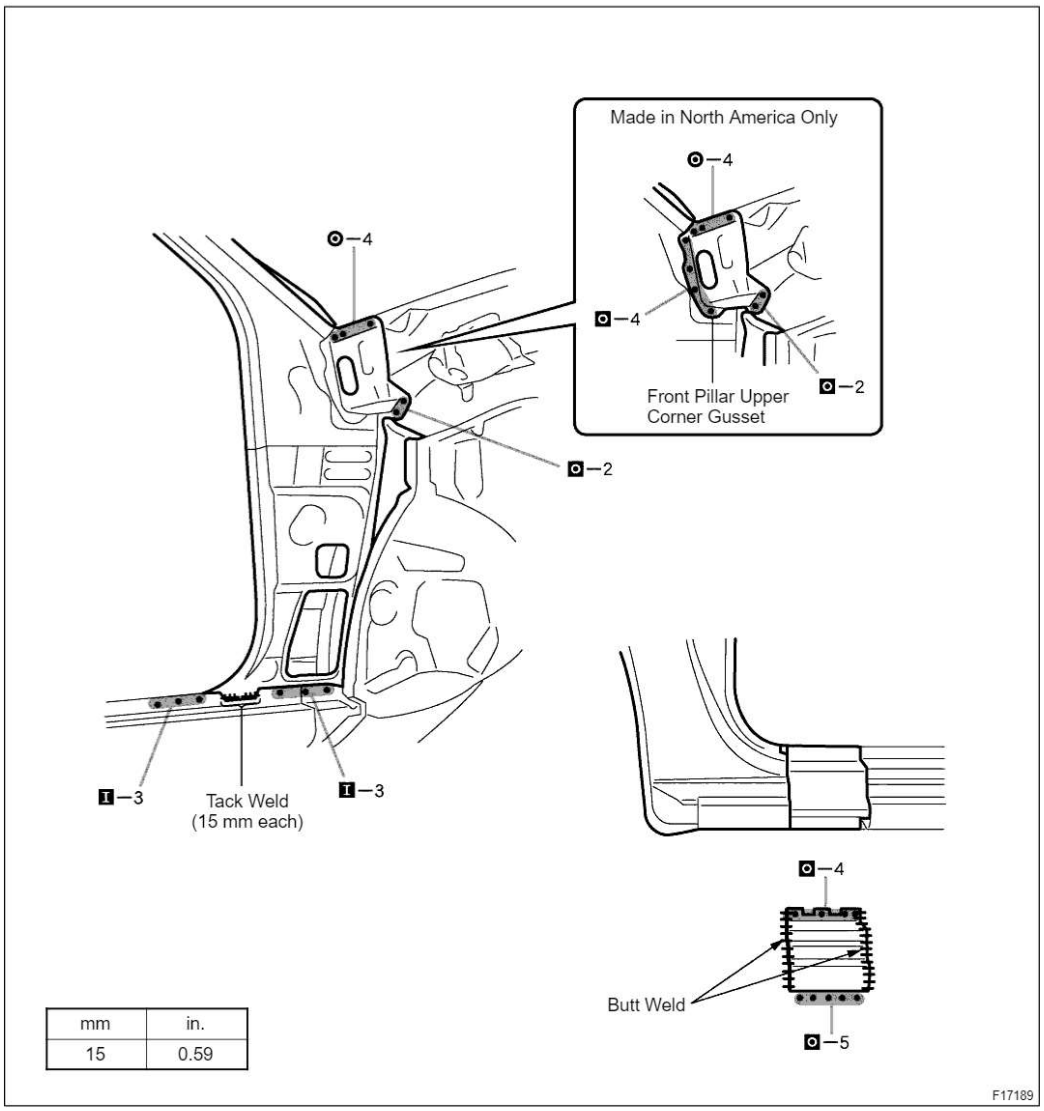
(c) Temporarily install the new parts and measure each part in accordance with the body demension diagram.



mm	in.
10	0.39
140	5.51
330	12.99



mm	in.
20	0.79



5. **MEASURING OPENING PORTION DIMENSIONS (See page BP-100)**
6. **INSTALL FRONT BODY PILLAR LOWER GUSSET (See page BP-100)**
7. **INSTALL COWL TOP SIDE REINFORCEMENT (See page BP-39)**
8. **APPLYING SEALER TO THE ENGINE COMPARTMENT (See page PC-1)**
9. **APPLYING SEALER TO THE INSIDE OF THE VEHICLE (See page PC-1)**
10. **APPLYING UNDER COATING (See page PC-6)**
11. **CHARGING THE POLYURTHANE FOAM (See page PC-8)**
12. **APPLYING ANTI-RUST AGENT**

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

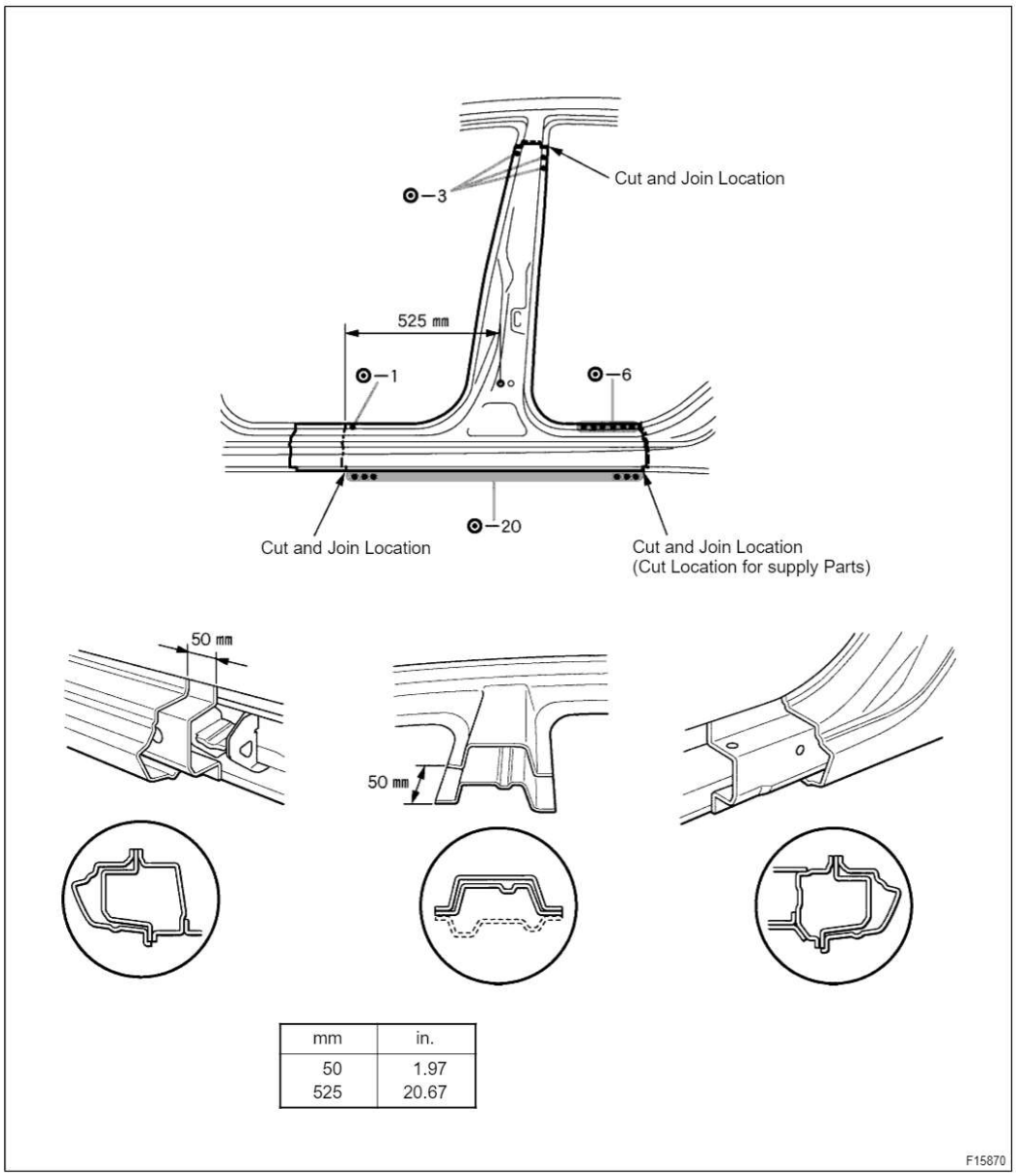
CENTER BODY PILLAR (CUT)

REPLACEMENT

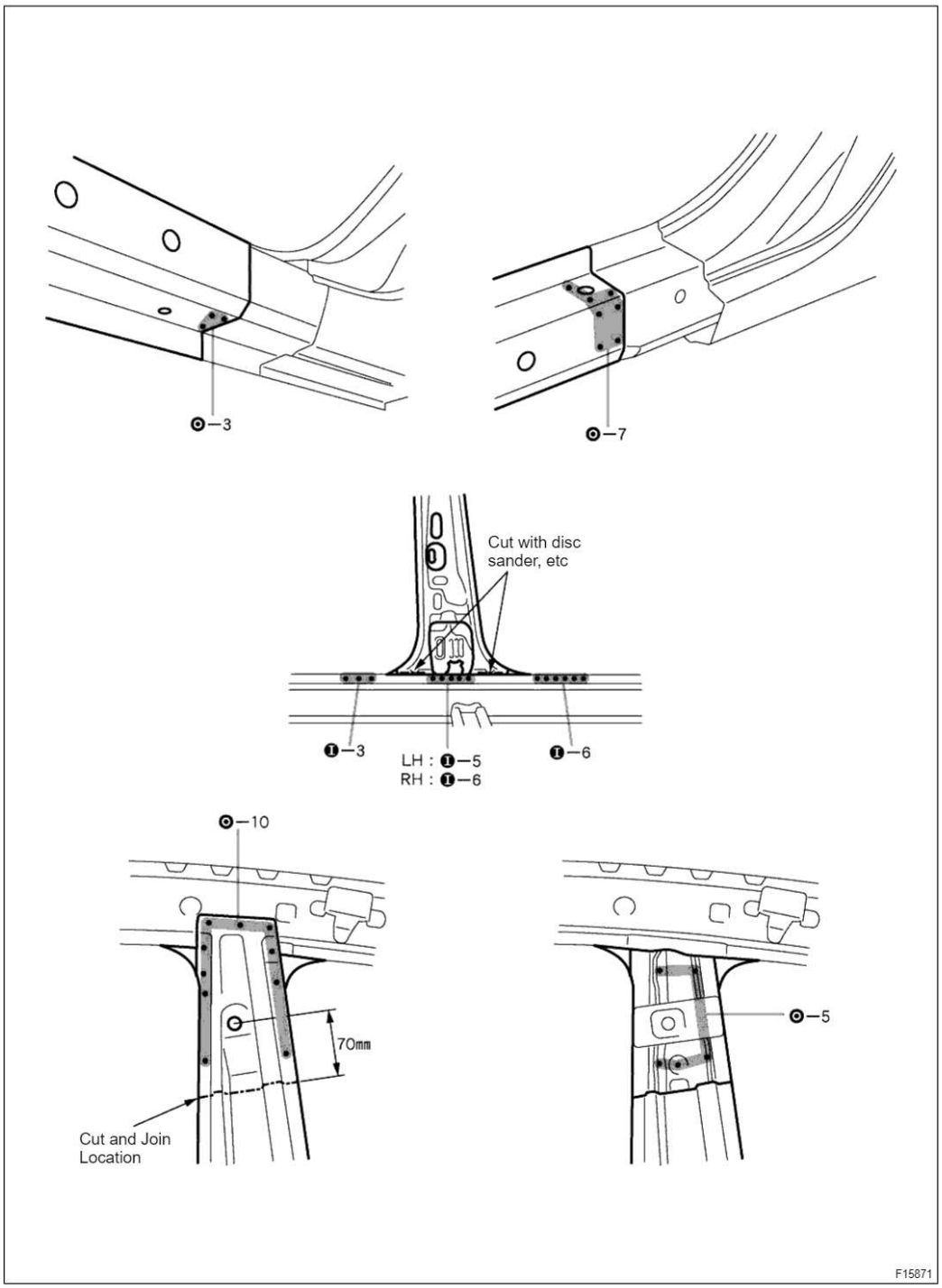
1. REMOVE CENTER BODY PILLAR

(a) Cut and join the parts at the locations as shown below.

HINT:
Shift the each cut and join locations of the outer panel, pillar reinforcement.



mm	in.
50	1.97
525	20.67


3
7
Cut with disc sander, etc
3
LH : 5
RH : 6
6
10
70mm
Cut and Join Location
5
F15871

2. INSTALL CENTER BODY PILLAR

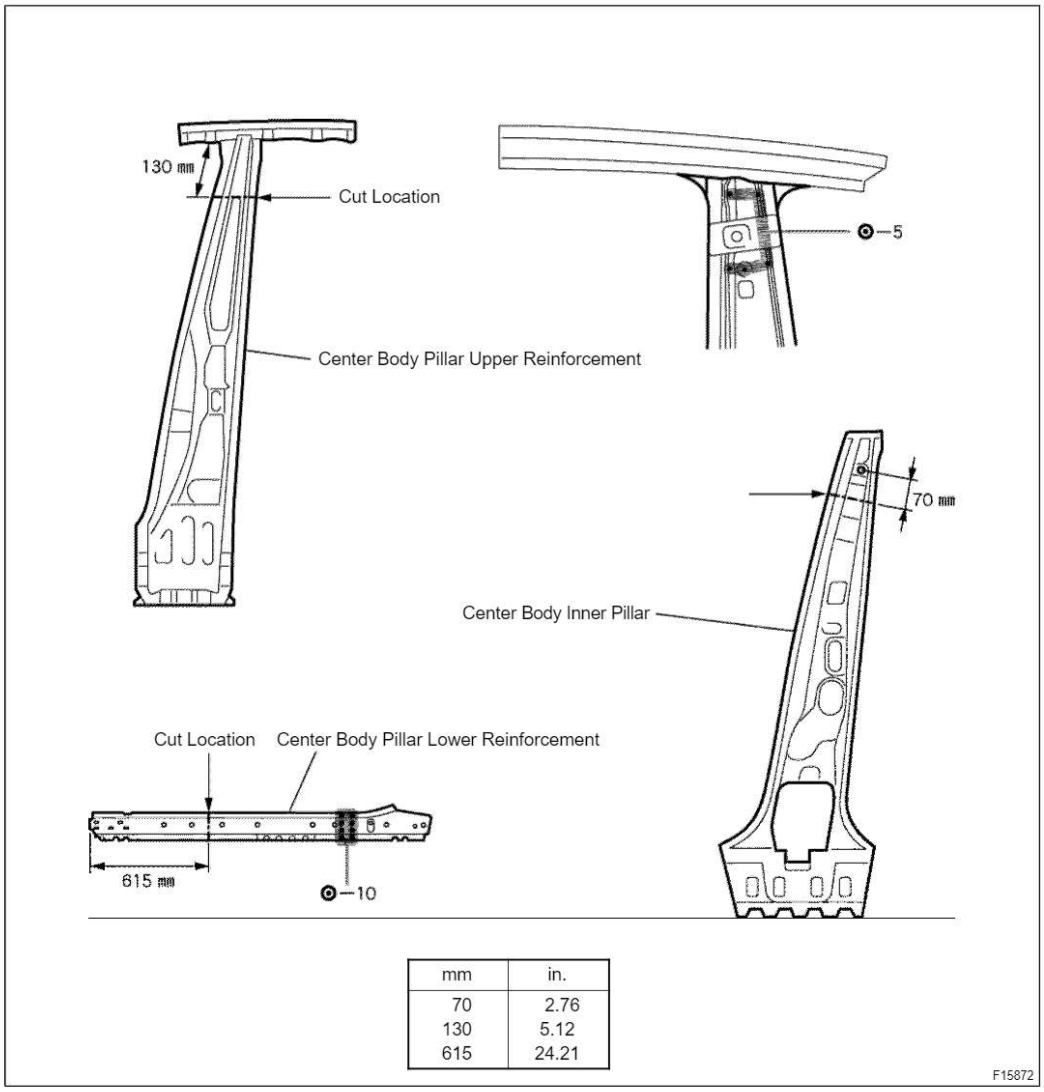
HINT:
Inspect the fitting of the front door and rear door, etc., before welding since this aftects the appearance of the finish.

(a) Cut the new parts for the center body pillar lower reinforce at the location as shown below.

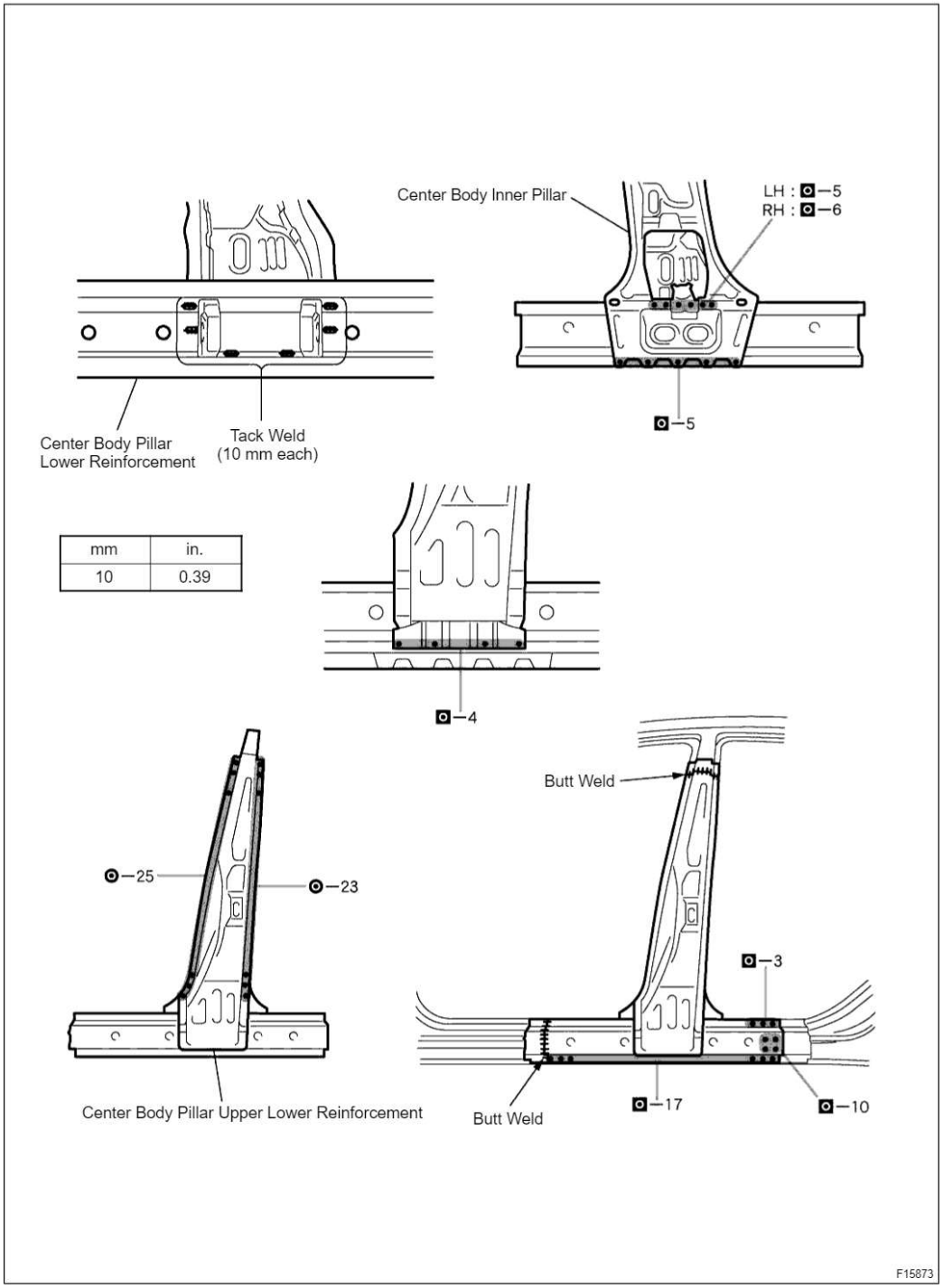
(b) Before temporarily installing the new parts, weld the center body inner pillar, center body pillar lower reinforce and center body pillar upper reinforce.

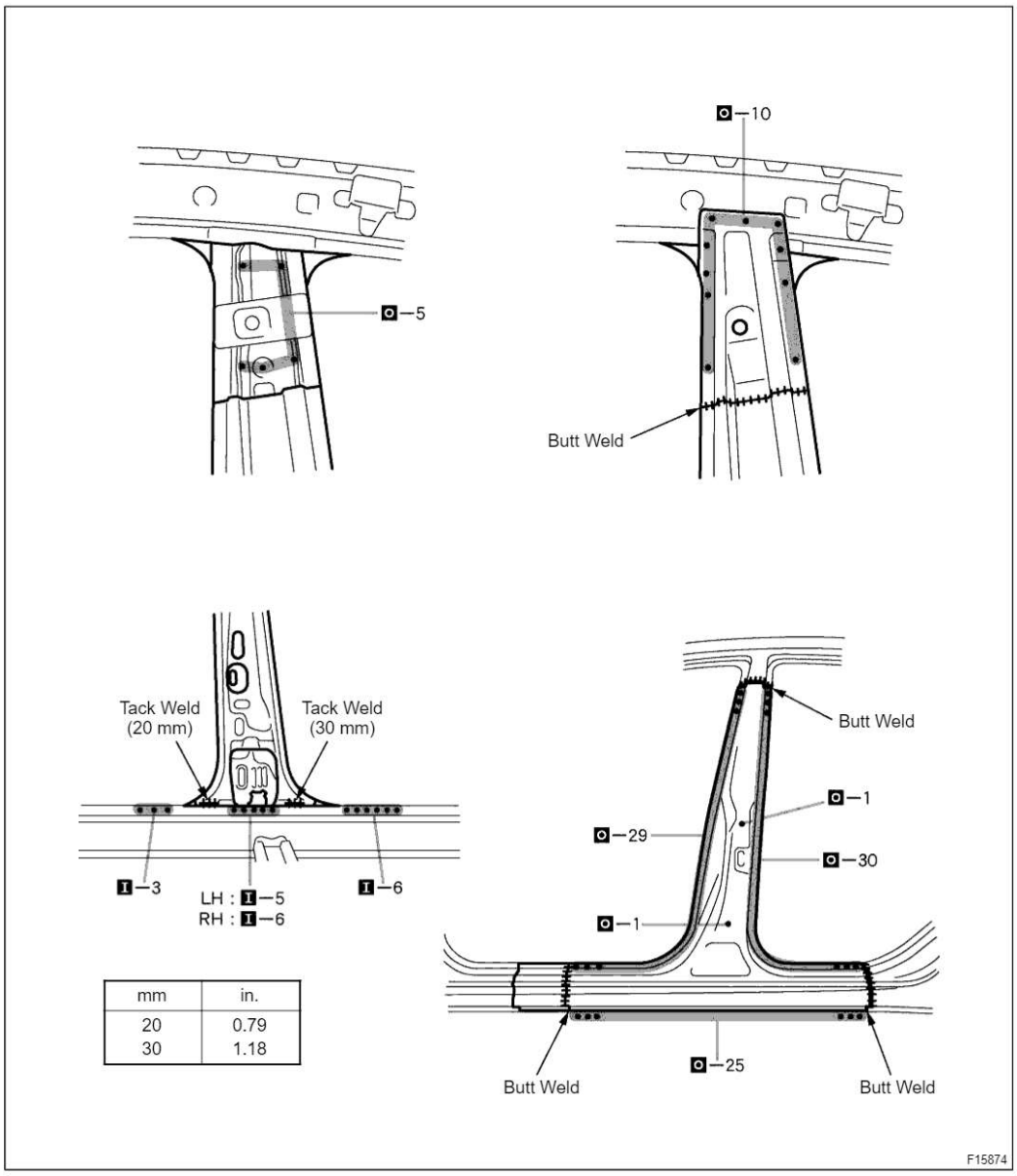
(c) After welding the center body inner pillar, center body pillar lower reinforce and center body pillar upper reinforce to the vehicle, install the center body outer pillar.

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



mm	in.
70	2.76
130	5.12
615	24.21


Center Body Inner Pillar
LH : ⊙—5
RH : ⊙—6
⊙—5
Center Body Pillar
Lower Reinforcement
Tack Weld
(10 mm each)
mm
in.
10
0.39
⊙—4
⊙—25
⊙—23
Center Body Pillar Upper Lower Reinforcement
Butt Weld
⊙—3
⊙—17
⊙—10
Butt Weld
F15873



3. **MEASURING THE OPENING PORTION DIMENSIONS (See page BP-100)**
4. **APPLYING SEALER TO THE INSIDE OF THE VEHICLE (See page PC-1)**
5. **APPLYING UNDER COATING (See page PC-6)**
6. **CHARGING THE POLYURETHANE FOAM (See page PC-9)**
7. **APPLYING ANTI-RUST AGENT**

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

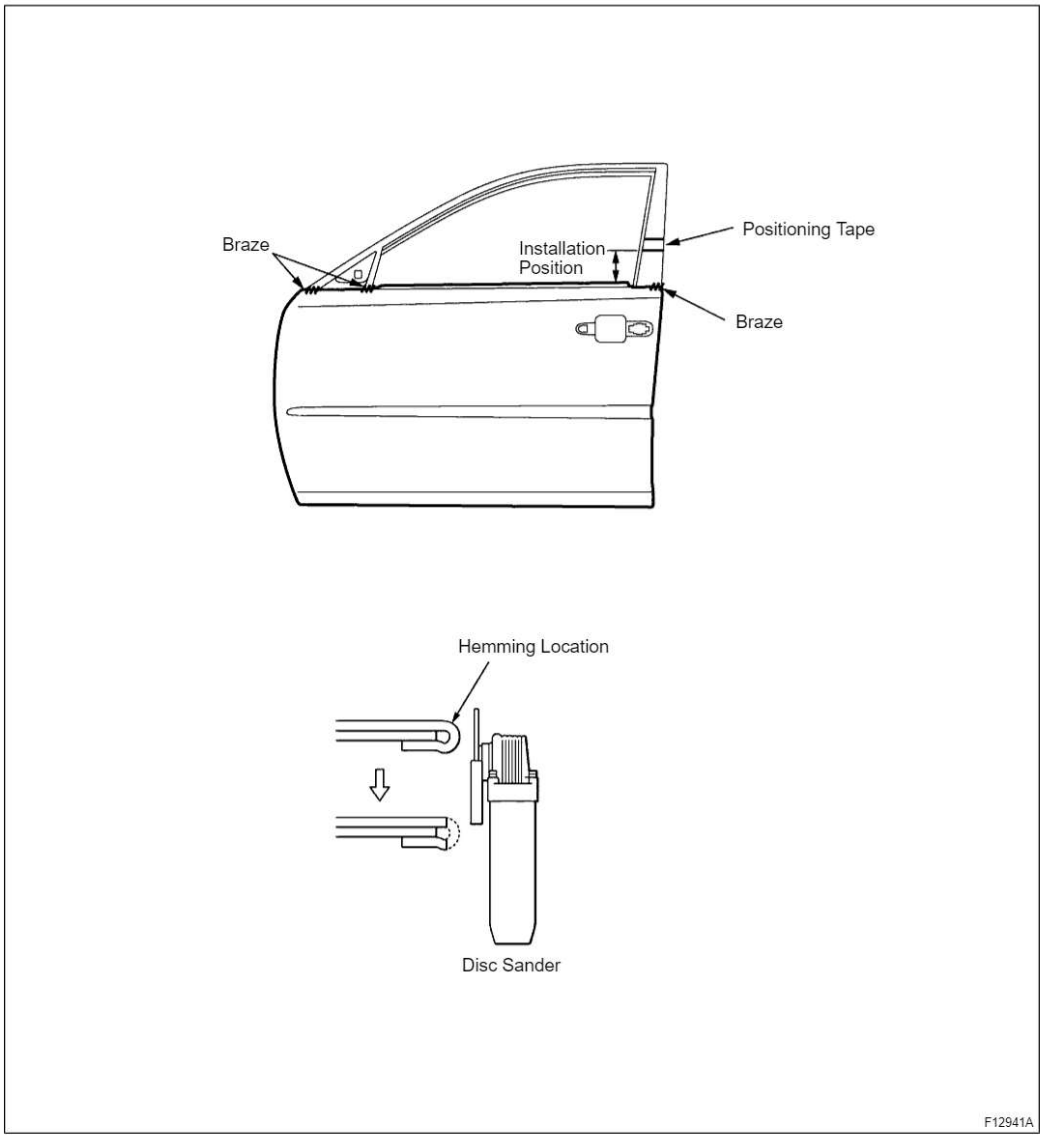
FRONT DOOR OUTER PANEL (ASSY)

REPLACEMENT

1. REMOVE FRONT DOOR OUTER PANEL

(a) Before removing the outer panel, make the installation position with a tape.

(b) After grinding off the hemming location, remove the outer panel.



2. INSTALL FRONT DOOR OUTER PANEL

(a) Before temporarily installing the new parts, apply body sealer to the reinforcement, side impact protection beam and back side of the new parts.

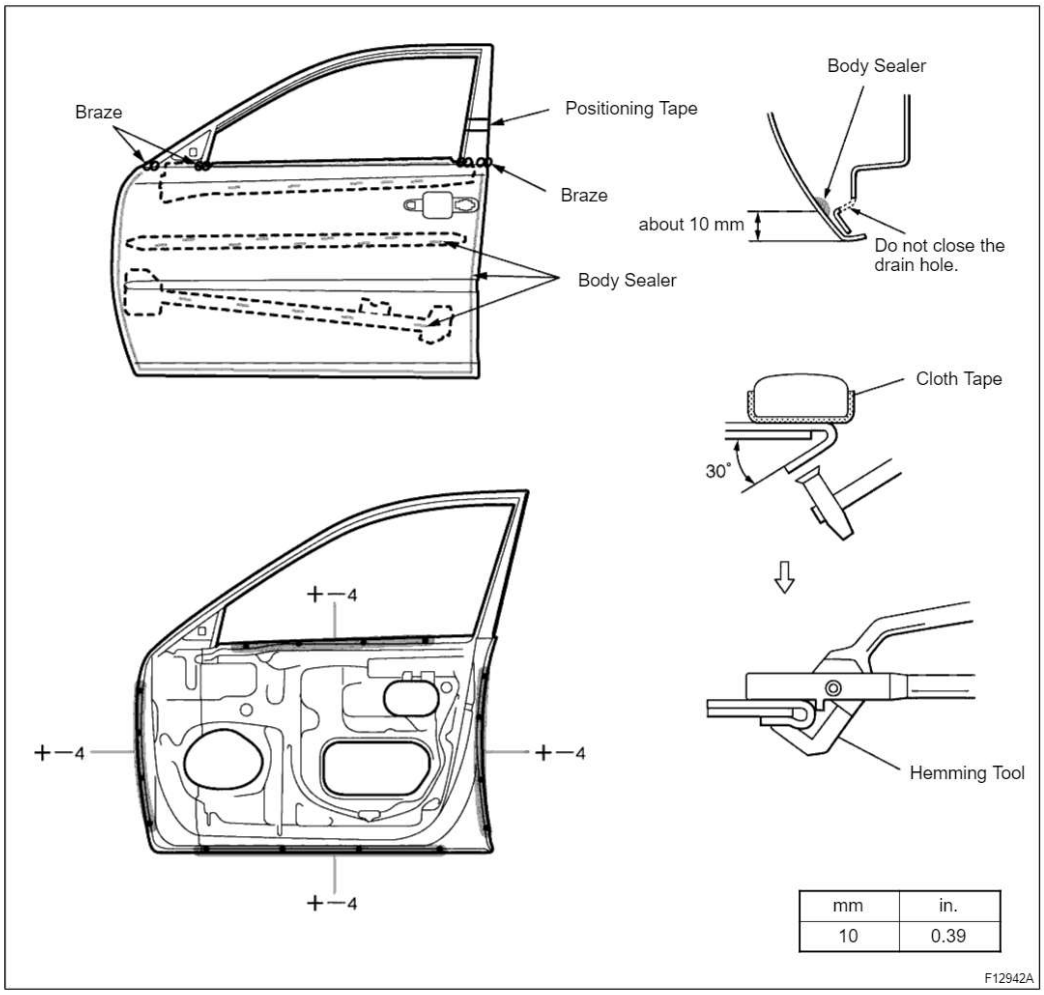
HINT:

- Apply just enough sealer for the reinforcement and side impact beam to touch the new panel. Apply sealer evenly around the flange area, about 10 mm (0.39 in.) from the edge, as shown.
- For other sealing points, refer to section PC.

(b) Bend the flange hem about 30° with a hammer and dolly, then fasten tightly with a hemming tool.

HINT:

- Perform hemming in three steps, being careful not to warp the panel.
- If a hemming tool cannot be used, hem with a hammer and dolly.



mm	in.
10	0.39

F12942A

3. **APPLYING SEALER TO THE DOOR PARTS (See page PC-1)**

4. **APPLYING ANTI-RUST AGENT**

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

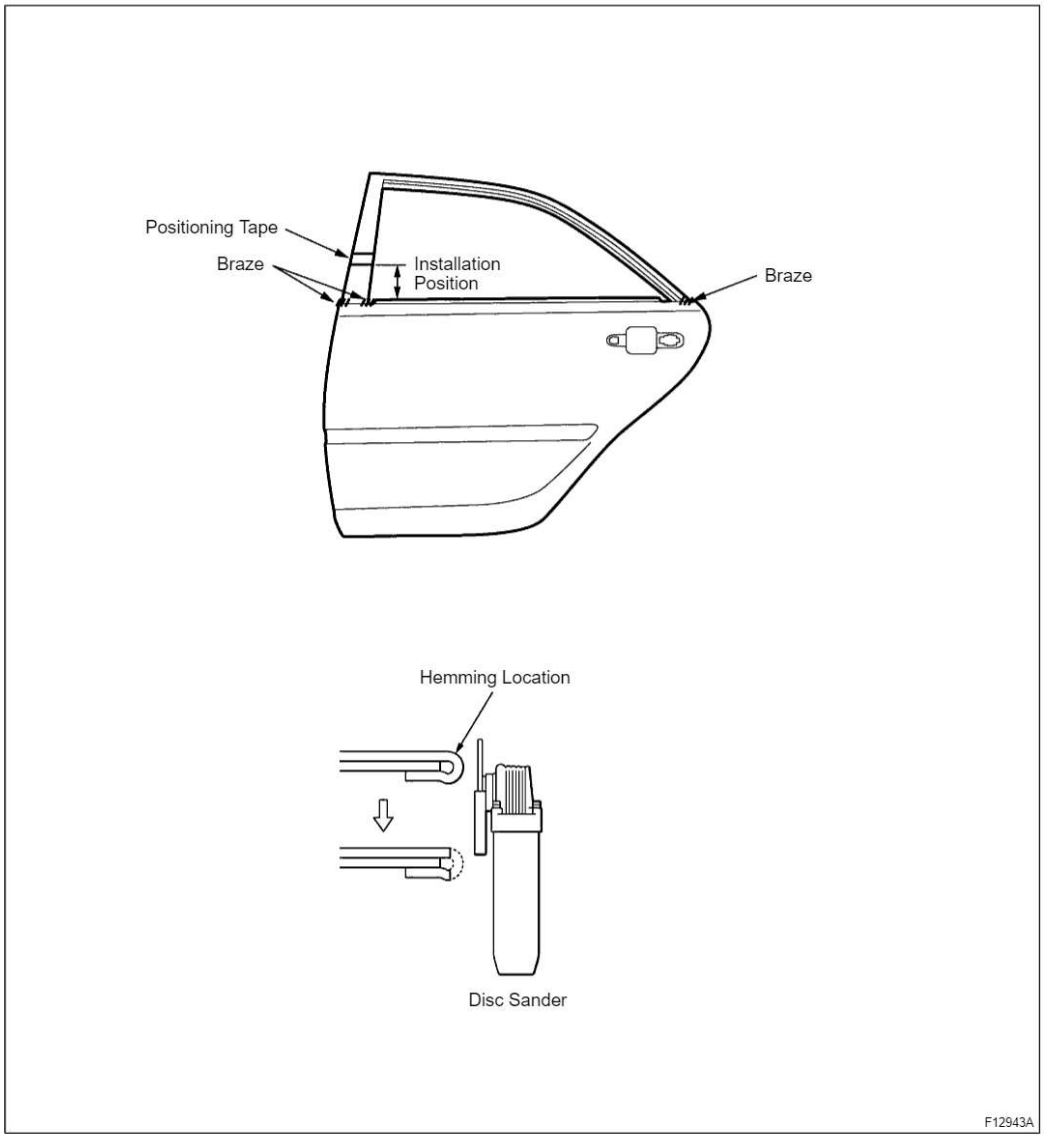
REAR DOOR OUTER PANEL (ASSY)

REPLACEMENT

1. REMOVE REAR DOOR OUTER PANEL

(a) Before removing the outer panel, make the installation positon with a tape.

(b) After grinding off the hemming location, remove the outer panel.



2. INSTALL REAR DOOR OUTER PANEL

(a) Before temporarily installing the new parts, apply body sealer to the reinforcement, side impact protection beam and back side of the new parts.

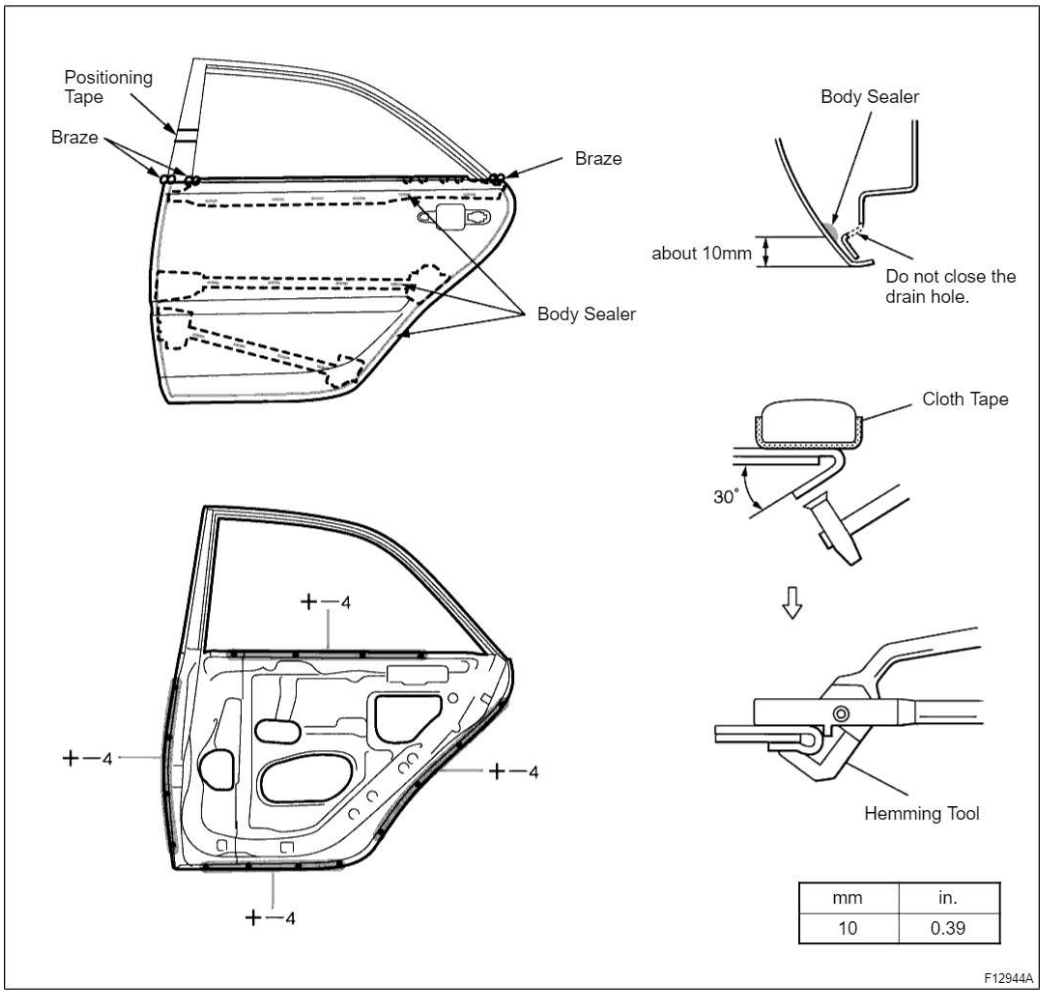
HINT:

- Apply just enough sealer for the reinforcement and side impact beam to touch the new panel. Apply sealer evenly around the flange area, about 10 mm (0.39 in.) from the edge, as shown.
- For other sealing points, refer to section PC.

(b) Bend the flange hem about 30° with a hammer and dolly, then fasten tightly with a hemming tool.

HINT:

- Perform hemming in three steps, being careful not to warp the panel.
- If a hemming tool cannot be used, hem with a hammer and dolly.



mm	in.
10	0.39

3. **APPLYING SEALER TO THE DOOR PARTS (See page PC-1)**

4. **APPLYING ANTI-RUST AGENT**

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

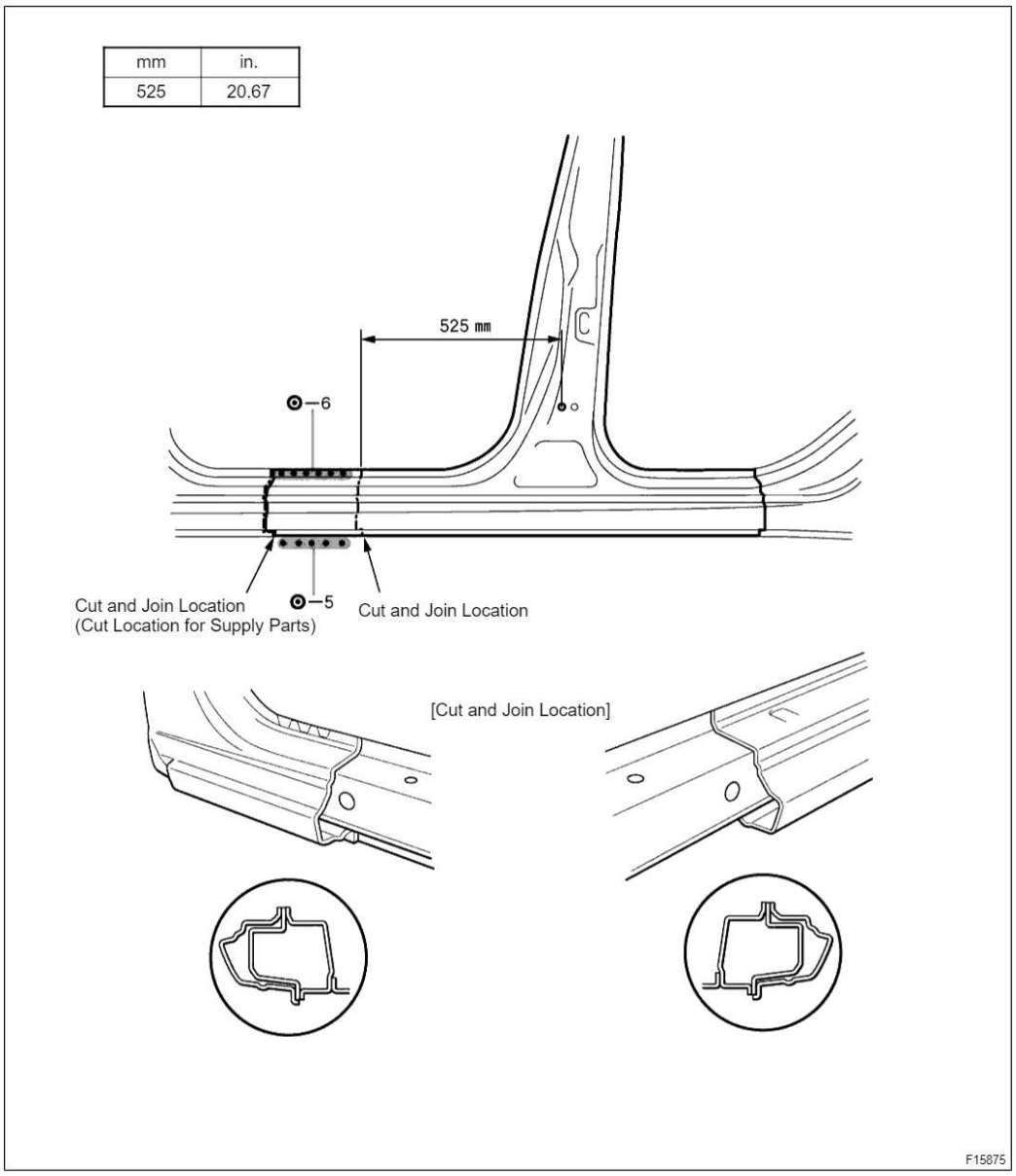
ROCKER OUTER PANEL (CUT-P)

REPLACEMENT

1. REMOVE ROCKER OUTER PANEL

(a) Cut and join the parts at the locations as shown below.

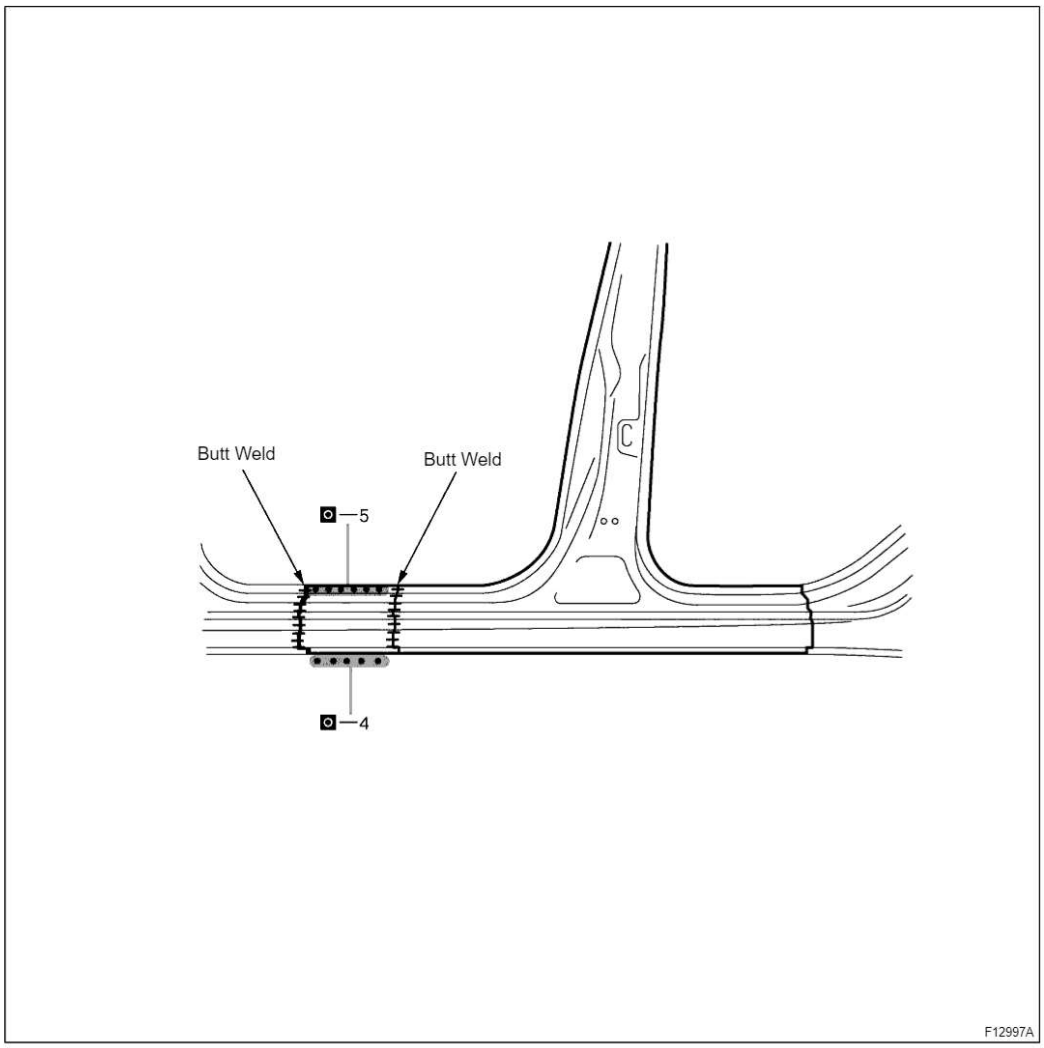
HINT:
Take care not to damage the internal reinforcement.



2. INSTALL ROCKER OUTER PANEL

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

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



3. MEASURING THE OPENING PORTION DIMENSIONS (See page BP-100)

4. APPLYING SEALER TO THE INSIDE OF THE VEHICLE (See page PC-1)

5. APPLYING UNDER COATING (See page PC-6)

6. APPLYING ANTI-RUST AGENT

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

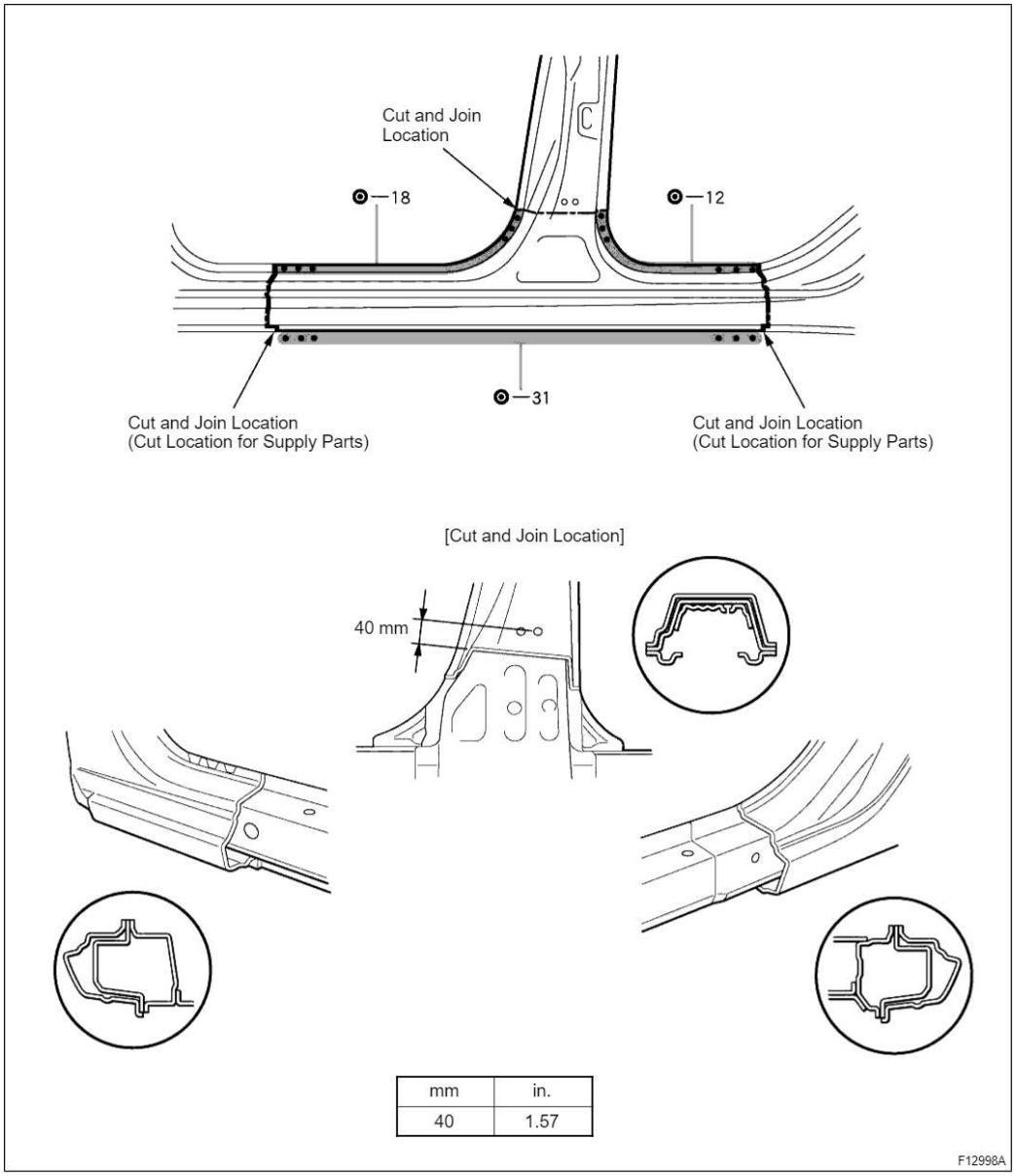
ROCKER OUTER PANEL (CUT)

REPLACEMENT

1. REMOVE ROCKER OUTER PANEL

(a) Cut and join the parts at the locations as shown below.

HINT:
Take care not to damage the internal reinforcement.

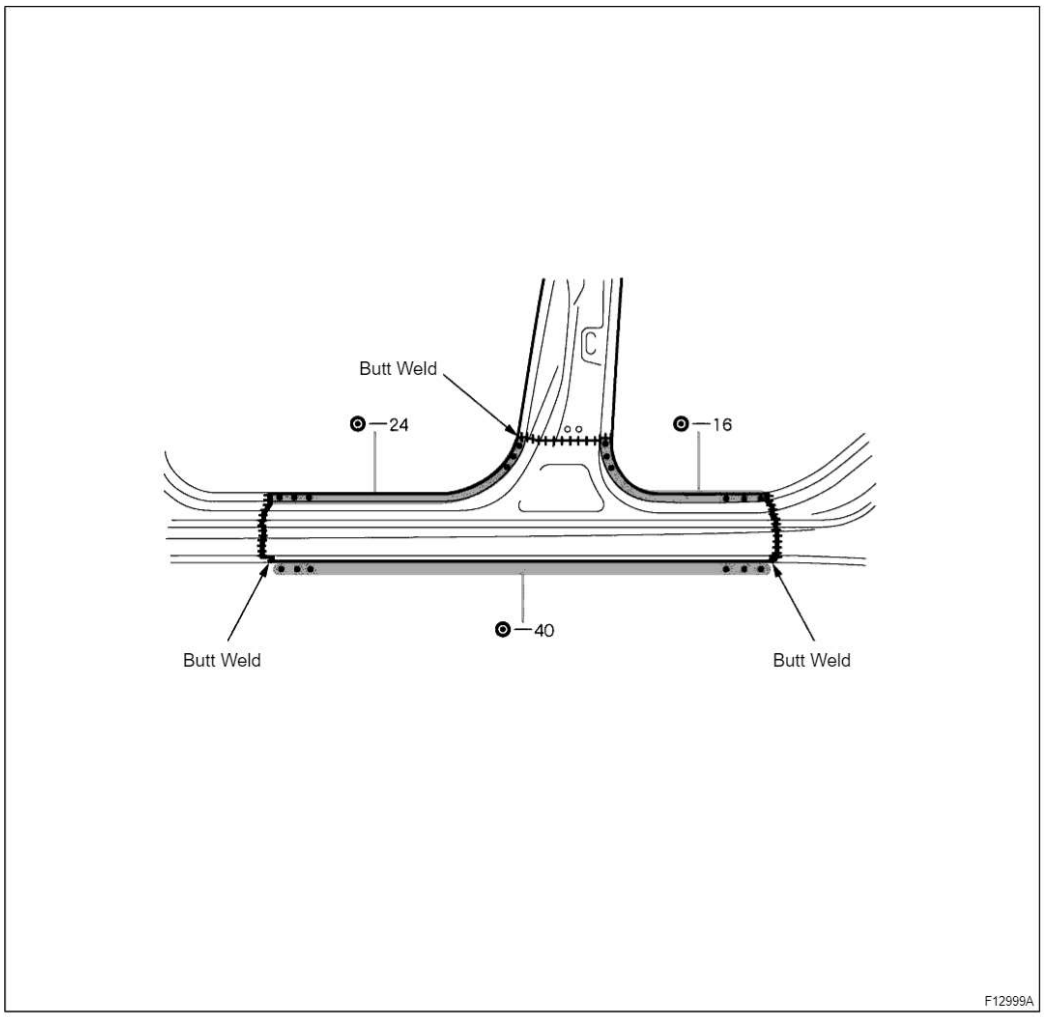


mm	in.
40	1.57

2. INSTALL ROCKER OUTER PANEL

HINT:
Inspect the fitting of the front door and rear door, etc., before welding, since this affects the appearance of the finish.

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



3. MEASURING THE OPENING PORTION DIMENSIONS (See page BP-100)

4. APPLYING SEALER TO THE INSIDE OF THE VEHICLE (See page PC-1)

5. APPLYING UNDER COATING (See page PC-6)

6. CHARGING THE POLYURETHANE FOAM (See page PC-9)

7. APPLYING ANTI-RUST AGENT

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

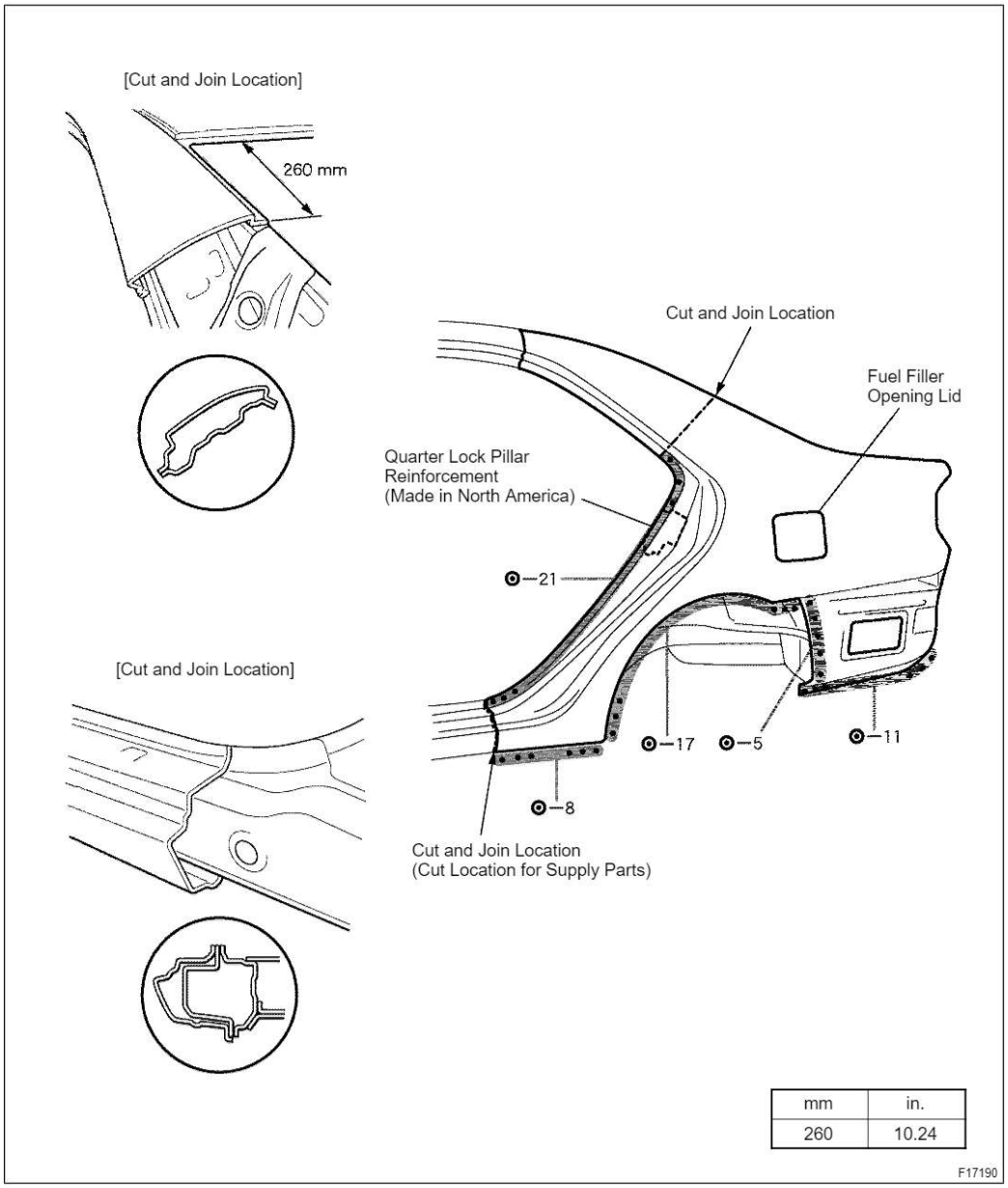
QUARTER PANEL (CUT)

REPLACEMENT

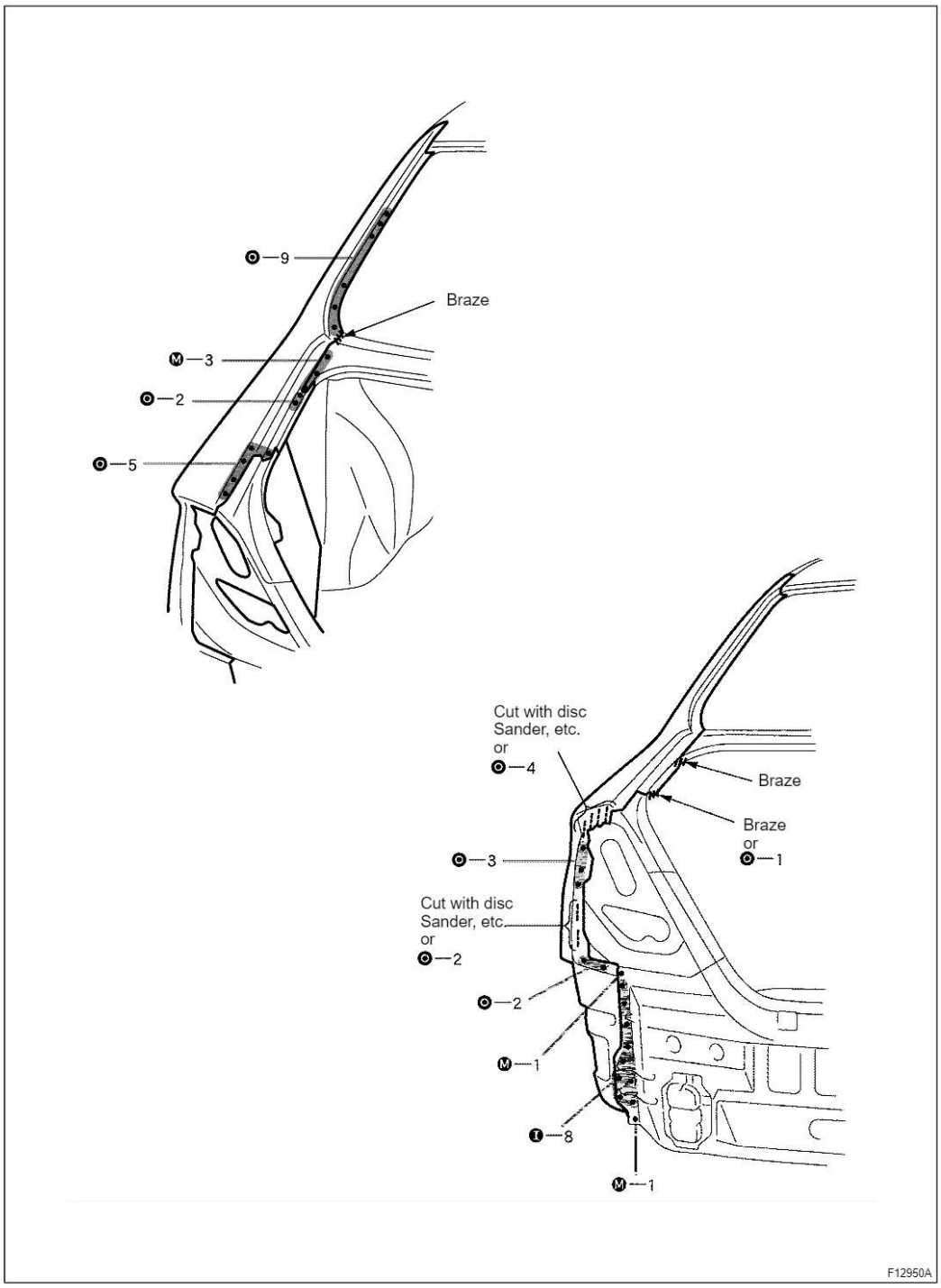
1. REMOVE QUARTER PANEL

(a) Cut and join the parts at the locations as shown below.

(b) Replace the fuel filler opening lid at the same time.



mm	in.
260	10.24


9
Braze
3
2
5
Cut with disc
Sander, etc.
or
4
Braze
Braze
or
1
3
Cut with disc
Sander, etc.
or
2
2
1
8
1
F12950A

2. INSTALL QUARTER PANEL

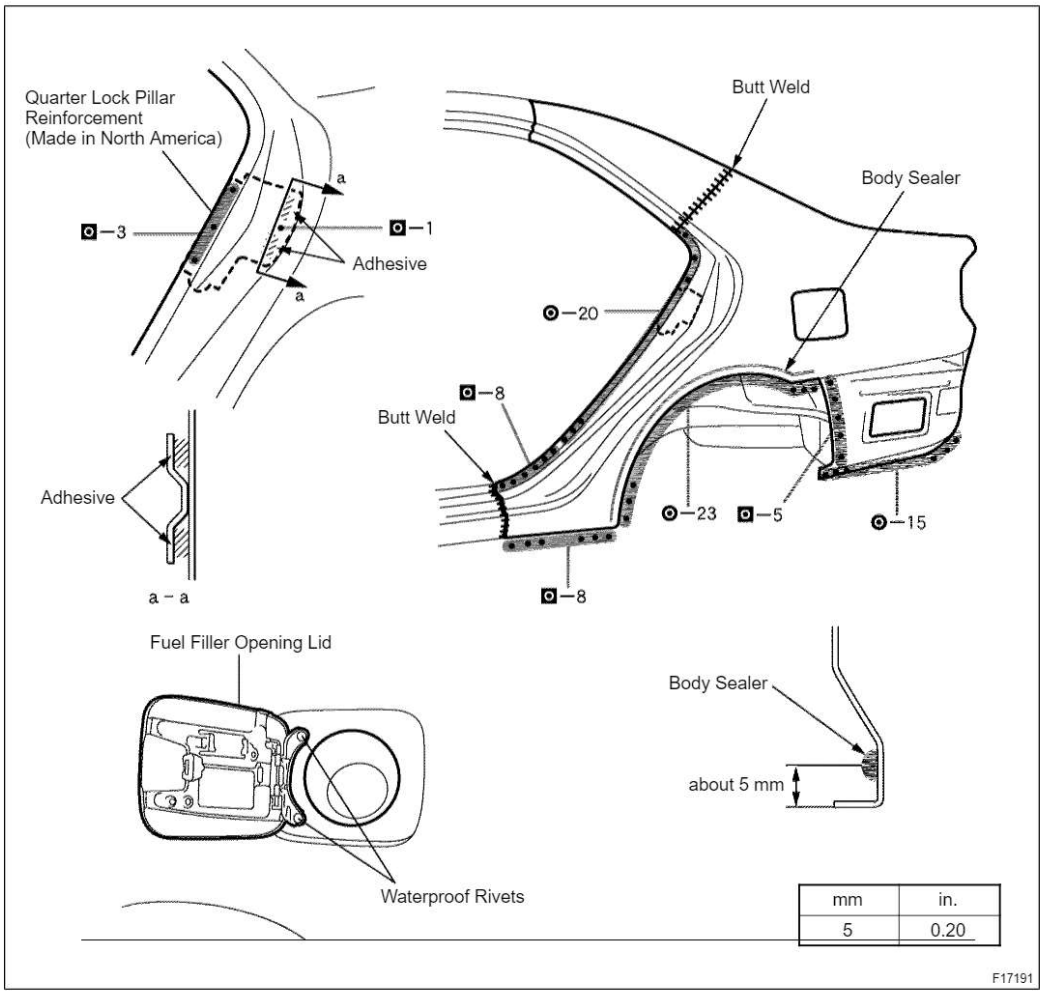
HINT:
Inspect the fitting of the rear door, luggage compartment door and rear combination light, etc., before welding, since this affects the appearance of the finish.

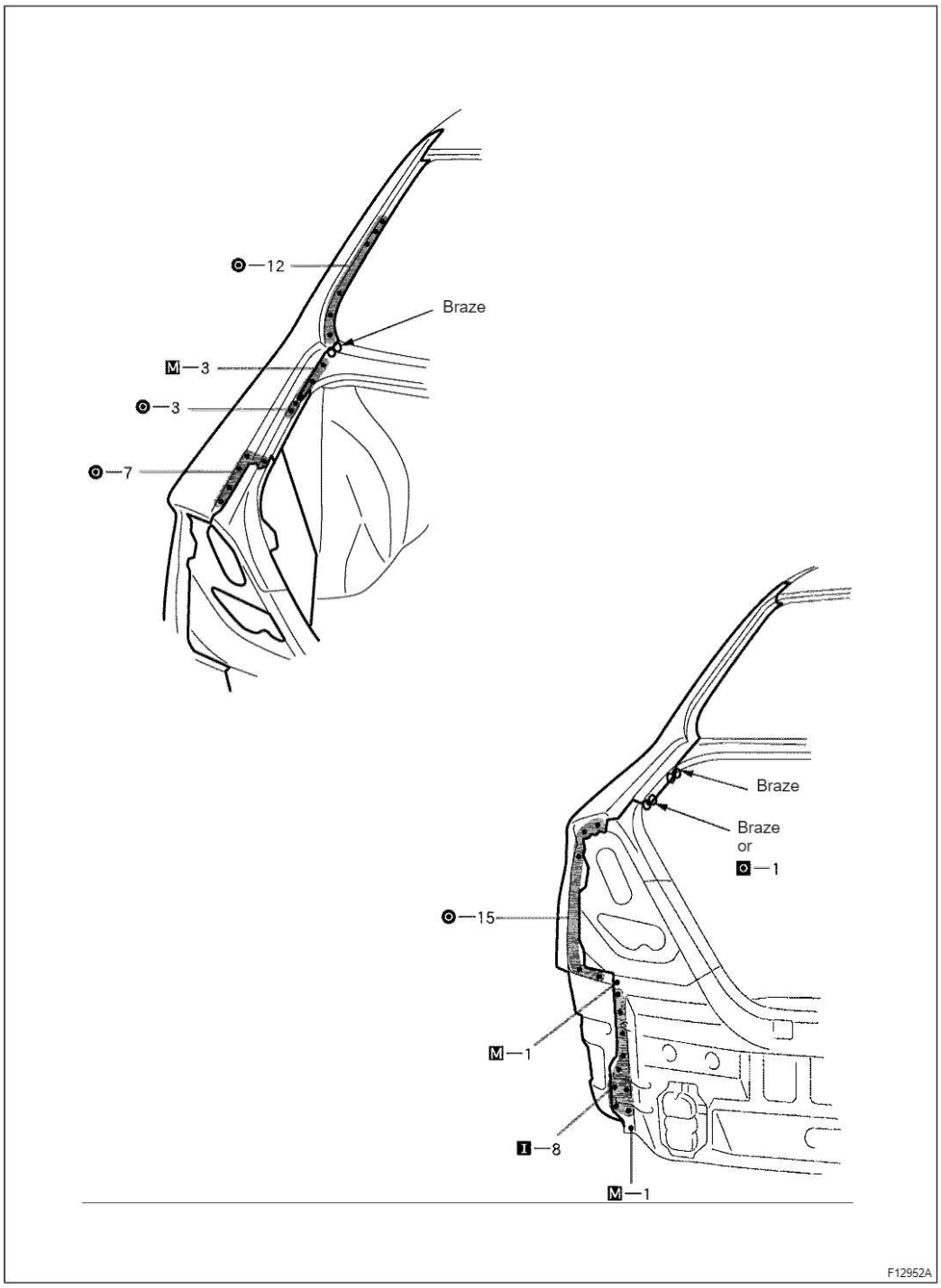
(a) Before temporarily installing the new parts, apply body sesaler to the wheel arch.

HINT:

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

(b) Use warterproof rivets for the fuel filler opening lid installation.




12
Braze
M 3
3
7
Braze
Braze
or
1
15
M 1
8
M 1
F12952A

3. **MEASURING THE OPENING PORTION DIMENSIONS (See page BP-100)**
4. **APPLYING SEALER TO THE INSIDE OF THE VEHICLE (See page PC-1)**
5. **APPLYING SEALER TO THE REAR LUGGAGE COMPARTMENT (See page PC-1)**
6. **APPLYING UNDER COATING (See page PC-6)**
7. **CHARGING THE POLYURETHANE FOAM (See page PC-9)**
8. **APPLYING ANTI-RUST AGENT**

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

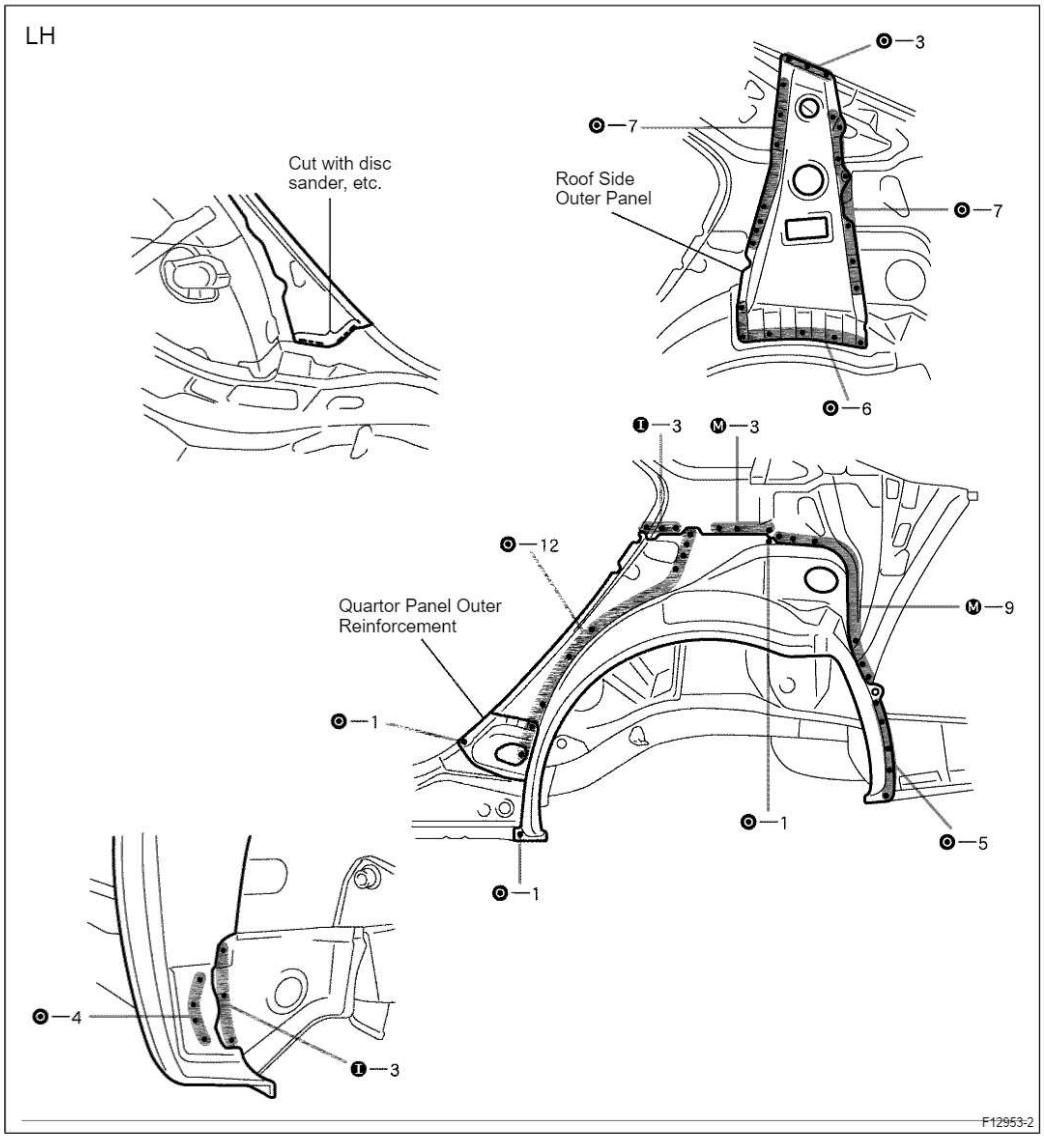
QUARTER WHEEL HOUSING OUTER PANEL (ASSY)

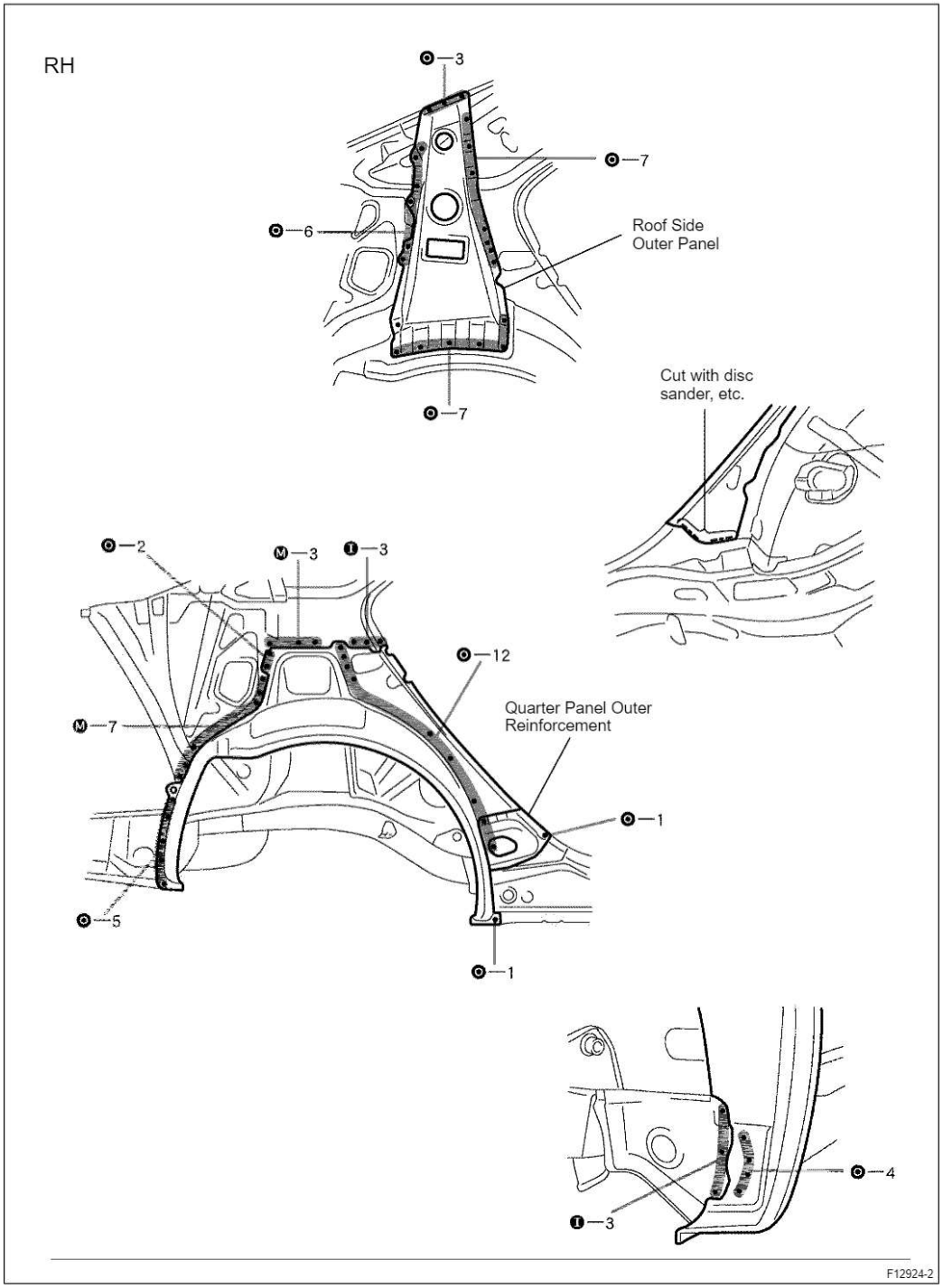
REPLACEMENT

1. **REMOVE QUARTER PANEL (See page BP-61)**
2. **REMOVE QUARTER WHEEL HOUSING OUTER PANEL**

(a) Remove the roof side outer panel at the location shown in below figure and remove the quarter wheel housing outer panel.

(b) Replace the quarter panel inner rear extension at the same time.



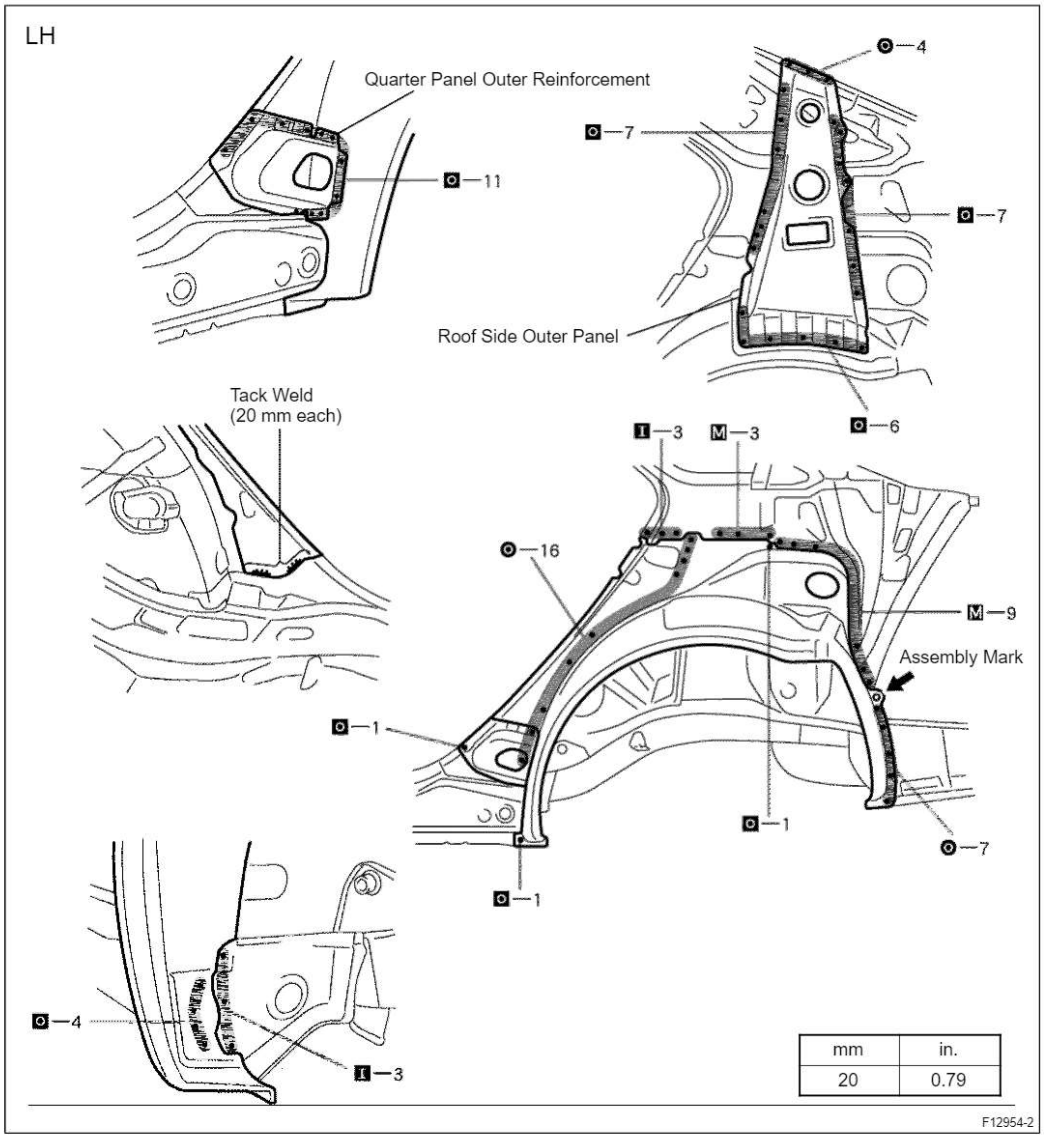

RH
O—3
O—7
O—6
Roof Side
Outer Panel
O—7
Cut with disc
sander, etc.
O—2
M—3
I—3
O—12
Quarter Panel Outer
Reinforcement
M—7
O—1
O—5
O—1
O—4
I—3
F12924-2

3. INSTALL QUARTER WHEEL HOUSING OUTER PANEL

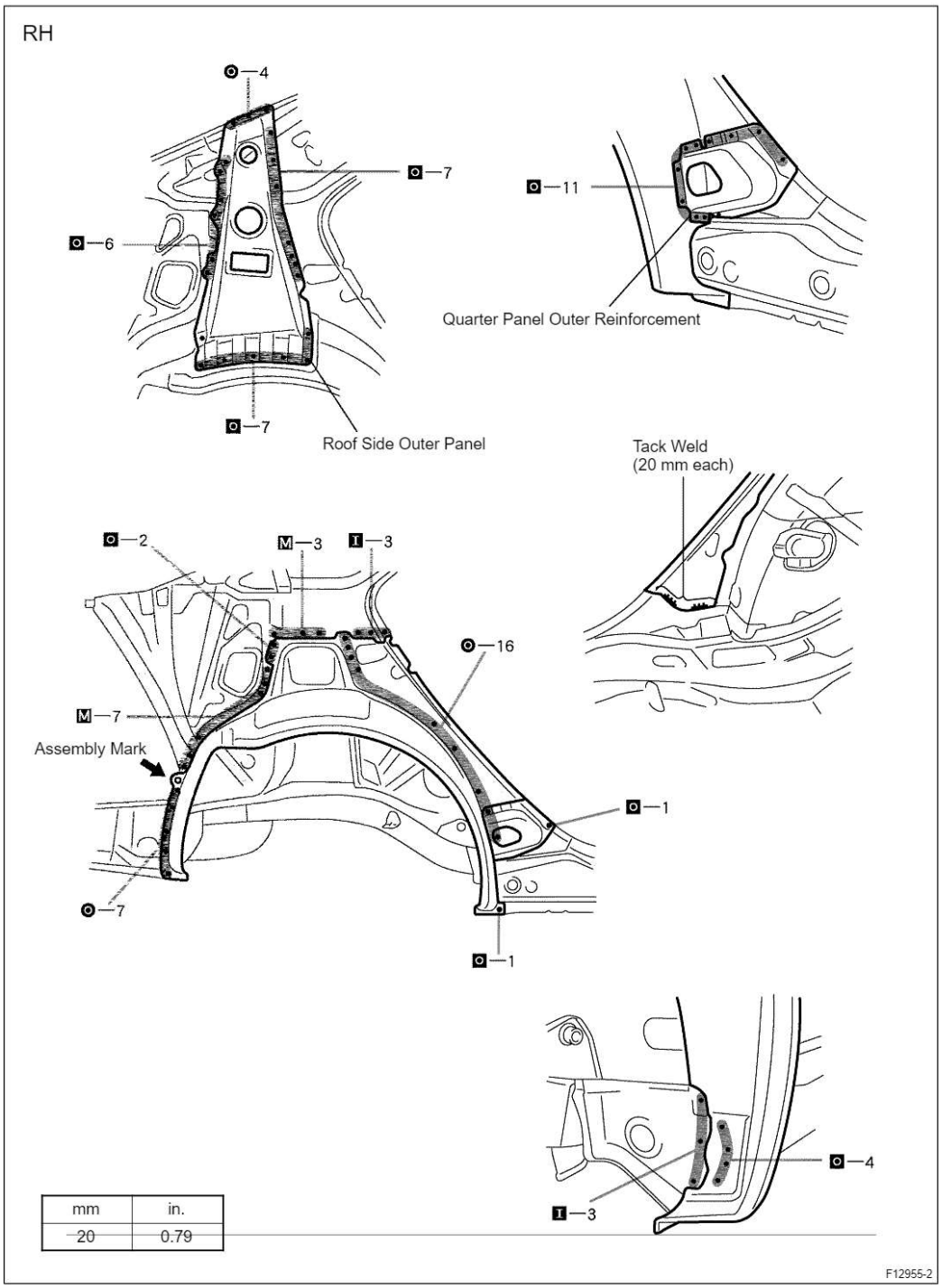
HINT:
Temporarily install the quarter panel and inspect the fitting before welding, since this affects the appearance of the finish.

(a) Before temporarily installing the new parts, weld the quarter wheel housing outer panel and quarter panel inner extension with standard points.

(b) Determine the position of the new parts by the assembly marks of the inner and outer panels.



mm	in.
20	0.79


RH
O—4
O—7
O—6
O—7
Roof Side Outer Panel
O—11
Quarter Panel Outer Reinforcement
Tack Weld
(20 mm each)
O—2
M—3
I—3
O—16
M—7
Assembly Mark
O—1
O—7
O—1
O—4
I—3
mm
in.
20
0.79
F12955-2

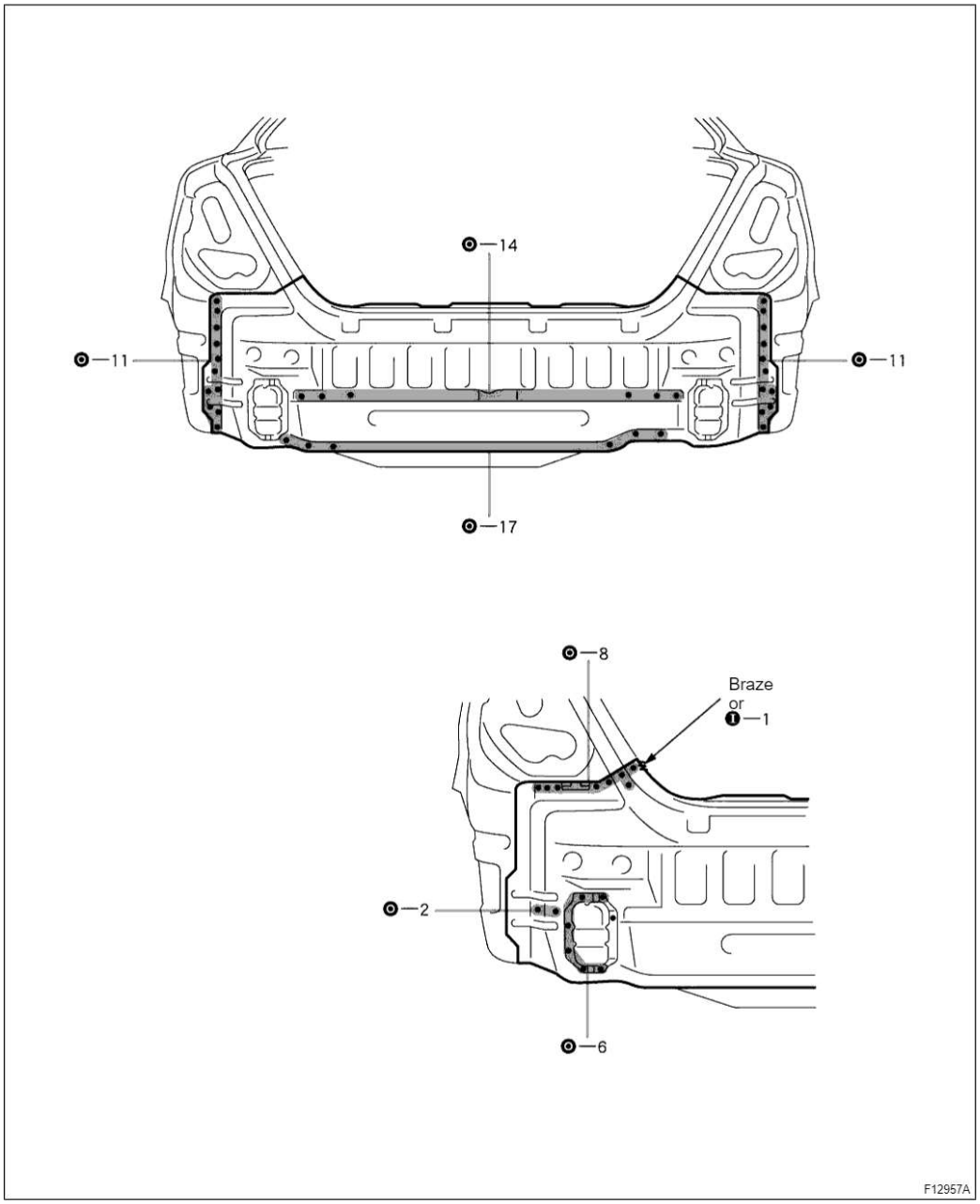
4. **INSTALL QUARTER PANEL (See apge BP-63)**
5. **APPLYING SEALER TO THE INSIDE OF THE VEHICLE (See page PC-1)**
6. **APPLYING SEALER TO THE REAR LUGGAGE COMPARTMENT (See page PC-1)**
7. **APPLYING UNDER COATING (See page PC-6)**
8. **APPLYING ANTI-RUST AGENT**

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

BODY LOWER BACK PANEL (ASSY)

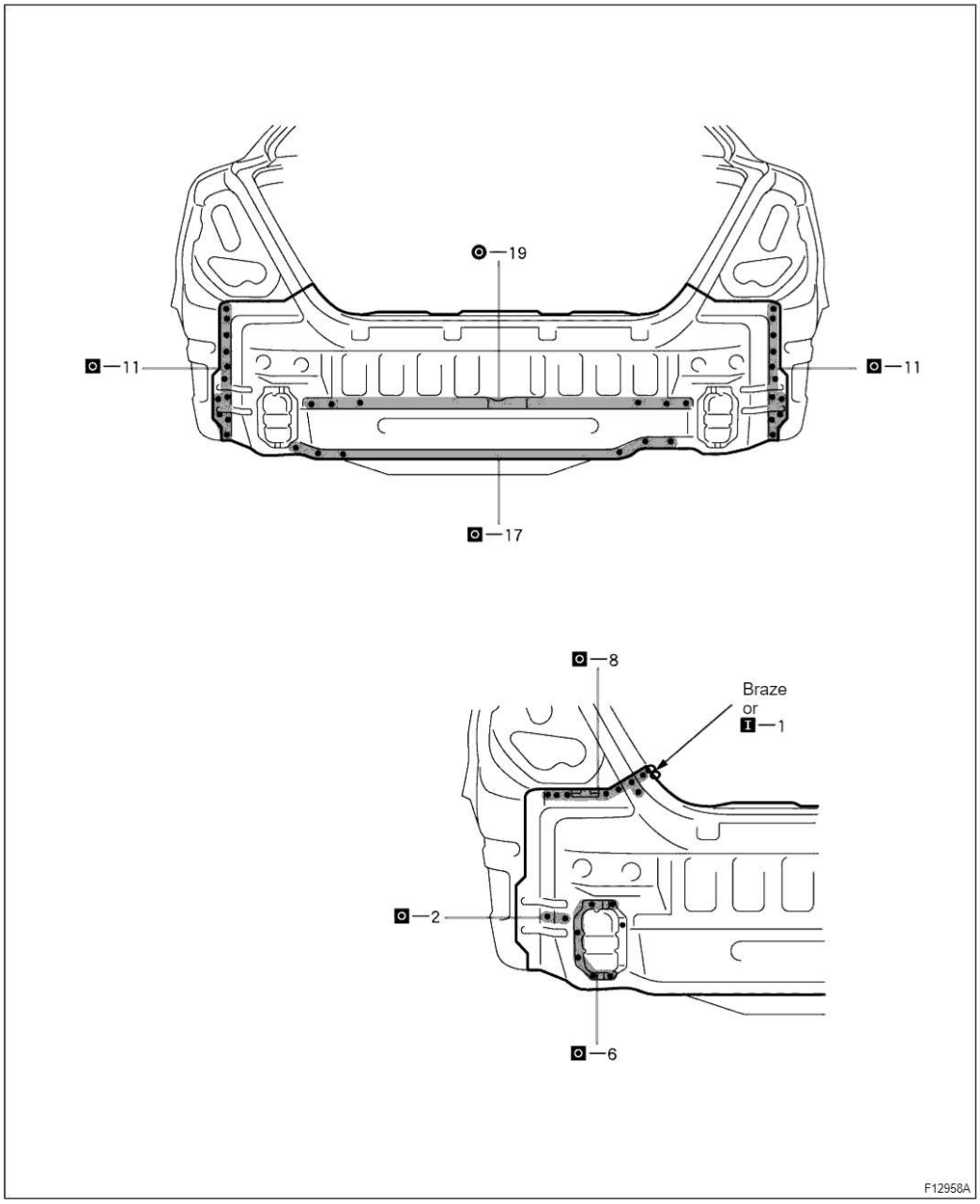
REPLACEMENT

1. REMOVE BODY LOWER BACK PANEL



2. INSTALL BODY LOWER BACK PANEL

HINT:
Inspect the fitting of the luggage compartment door and rear combination light, etc., before welding, since this attacts the appearance of the finish.



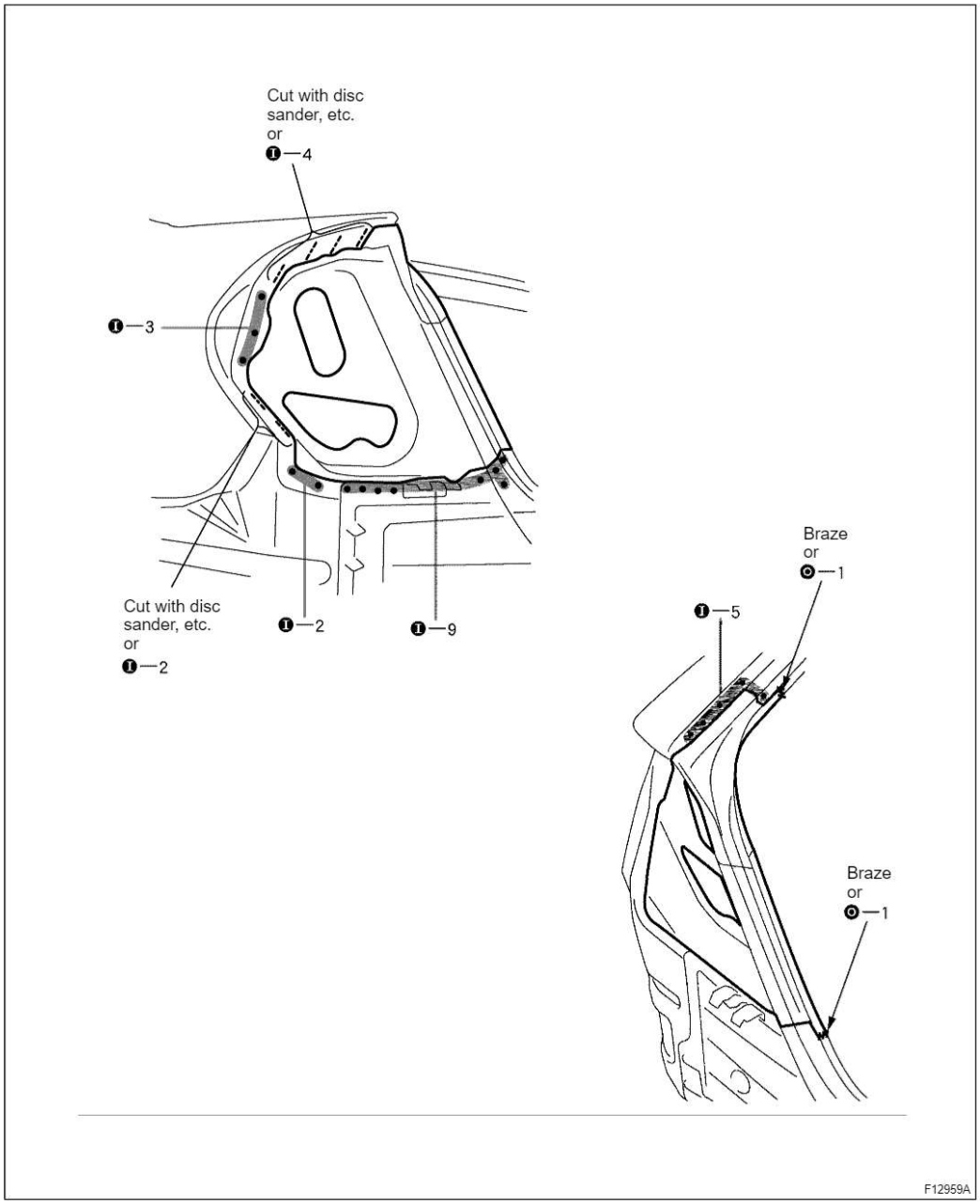
3. **MEASURING THE OPENING PORTION DIMENSIONS (See page BP-100)**
4. **APPLYING SEALER TO THE REAR LUGGAE COMPARTMENT (See page PC-1)**
5. **APPLYING UNDER COATING (See page PC-6)**
6. **APPLYING ANTI-RUST AGENT**

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

LUGGAGE COMPARTMENT OPENING TROUGH (ASSY)

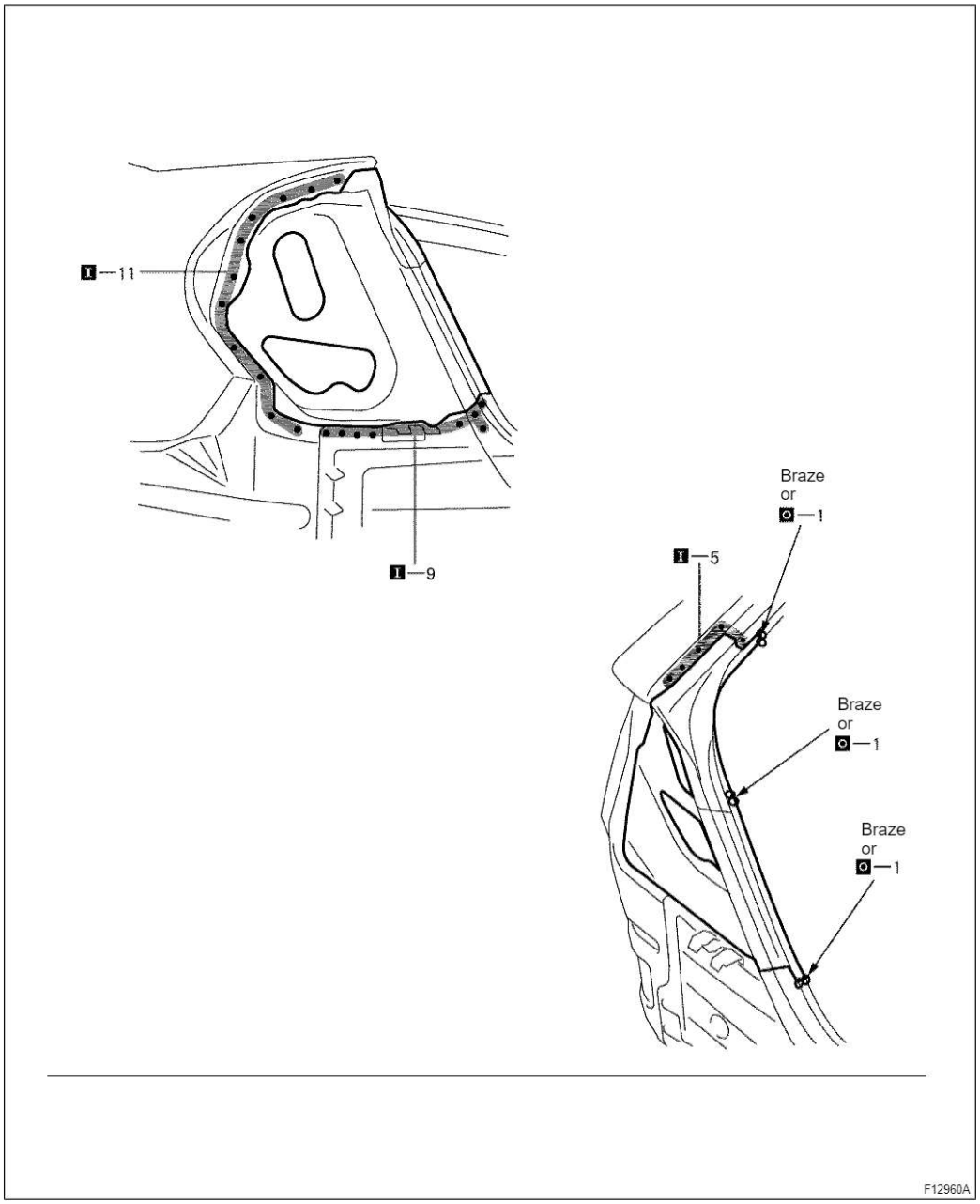
REPLACEMENT

1. REMOVE LUGGAGE COMPARTMENT OPENING TROUGH



2. INSTALL LUGGAGE COMPARTMENT OPENING TROUGH

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



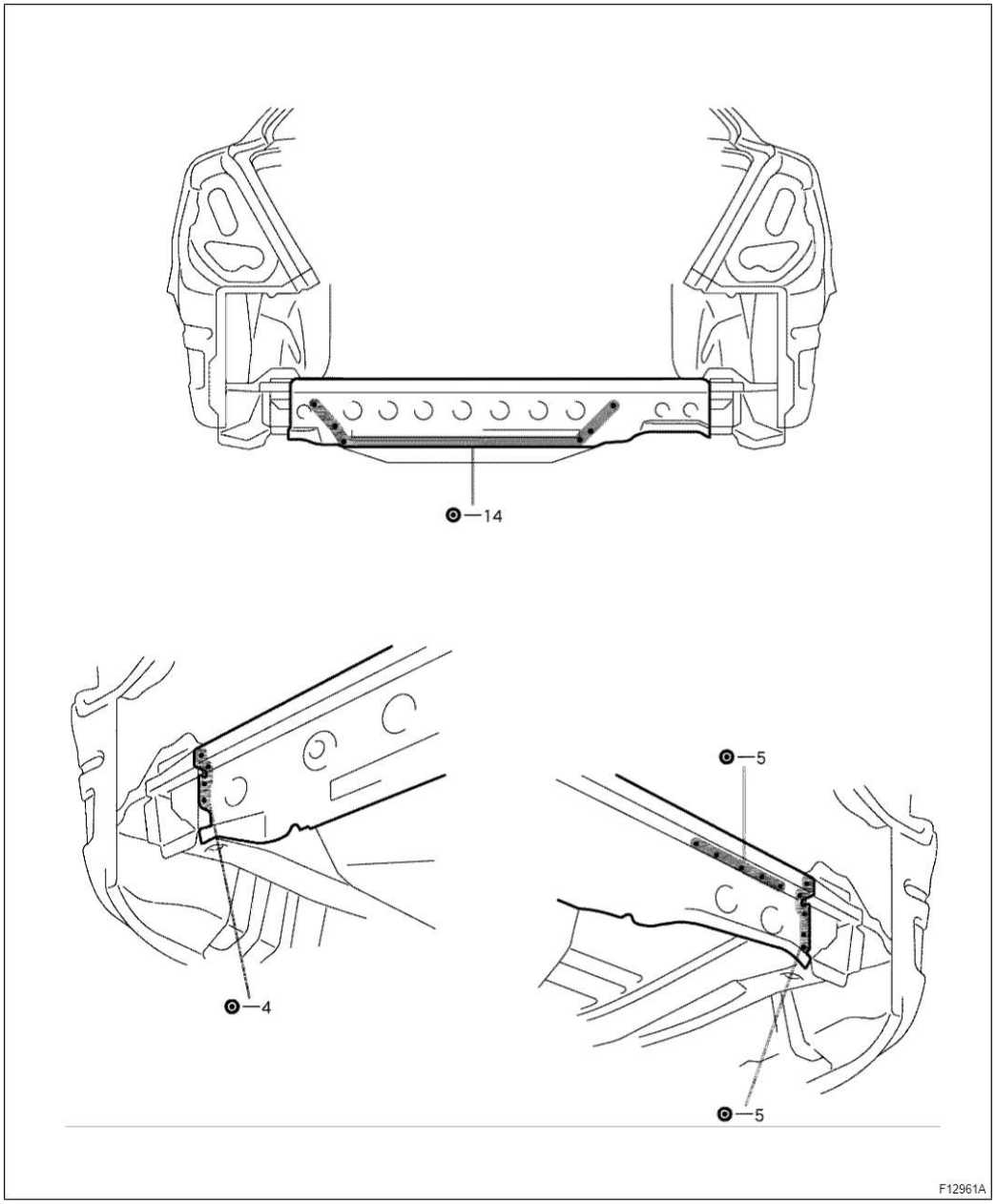
3. **MEASURING THE OPENING PORTION DIMENSIONS (See page BP-100)**
4. **APPLYING SEALER TO THE REAR LUGGAGE COMPARTMENT (See page PC-1)**
5. **APPLYING ANTI-RUST AGENT**

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

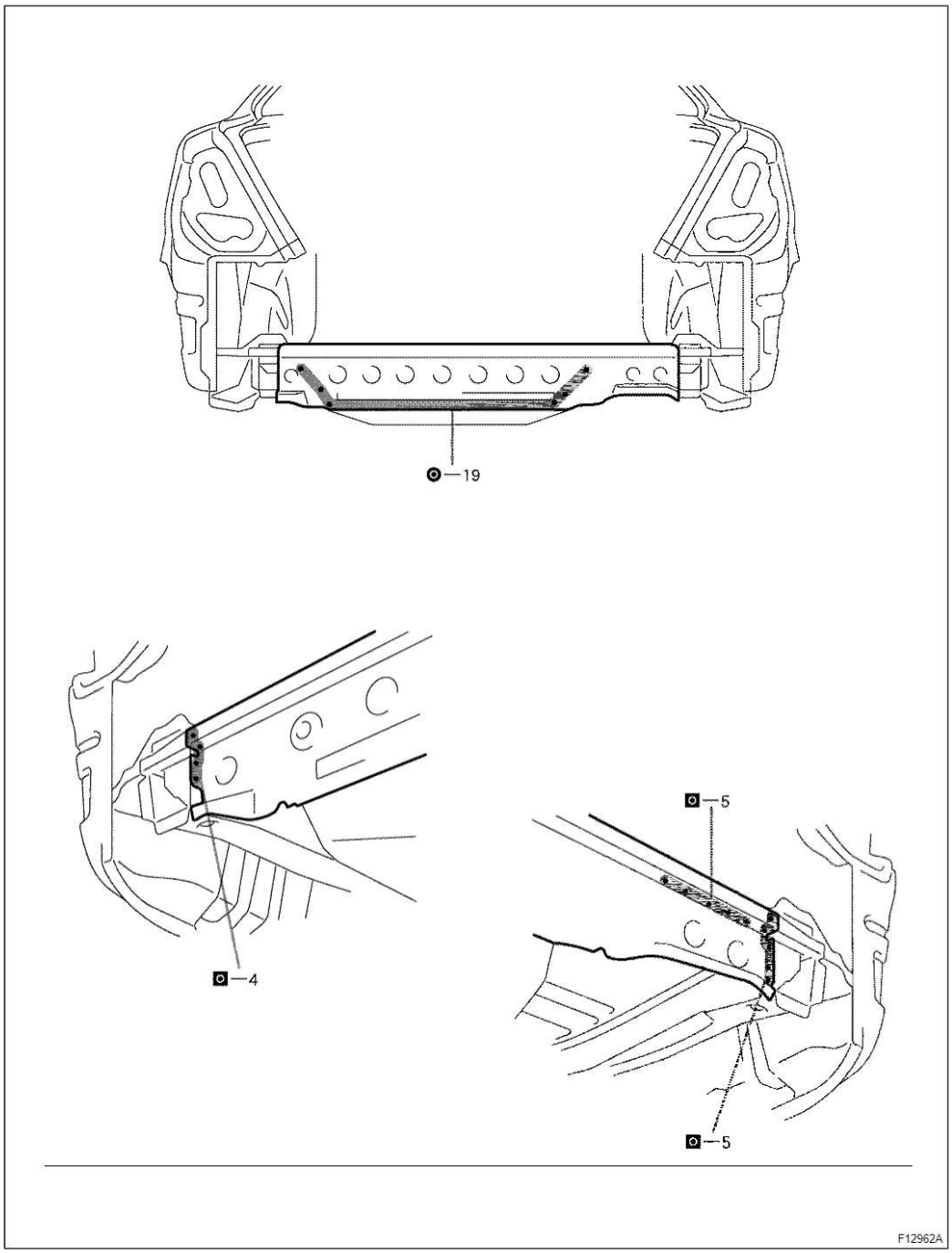
REAR FLOOR NO.3 CROSSMEMBER (ASSY)

REPLACEMENT

1. REMOVE BODY LOWER BACK PANEL (See page BP-73)
2. REMOVE REAR FLOOR NO.3 CROSSMEMBER



3. INSTALL REAR FLOOR NO.3 CROSSMEMBER



4. **INSTALL BODY LOWER BACK PANEL (See page BP-73)**
5. **APPLYING SEALER TO THE REAR LUGGAGE COMPARTMENT (See page PC-1)**
6. **APPLYING UNDER COATING (See page PC-6)**
7. **APPLYING ANTI-RUST AGENT**

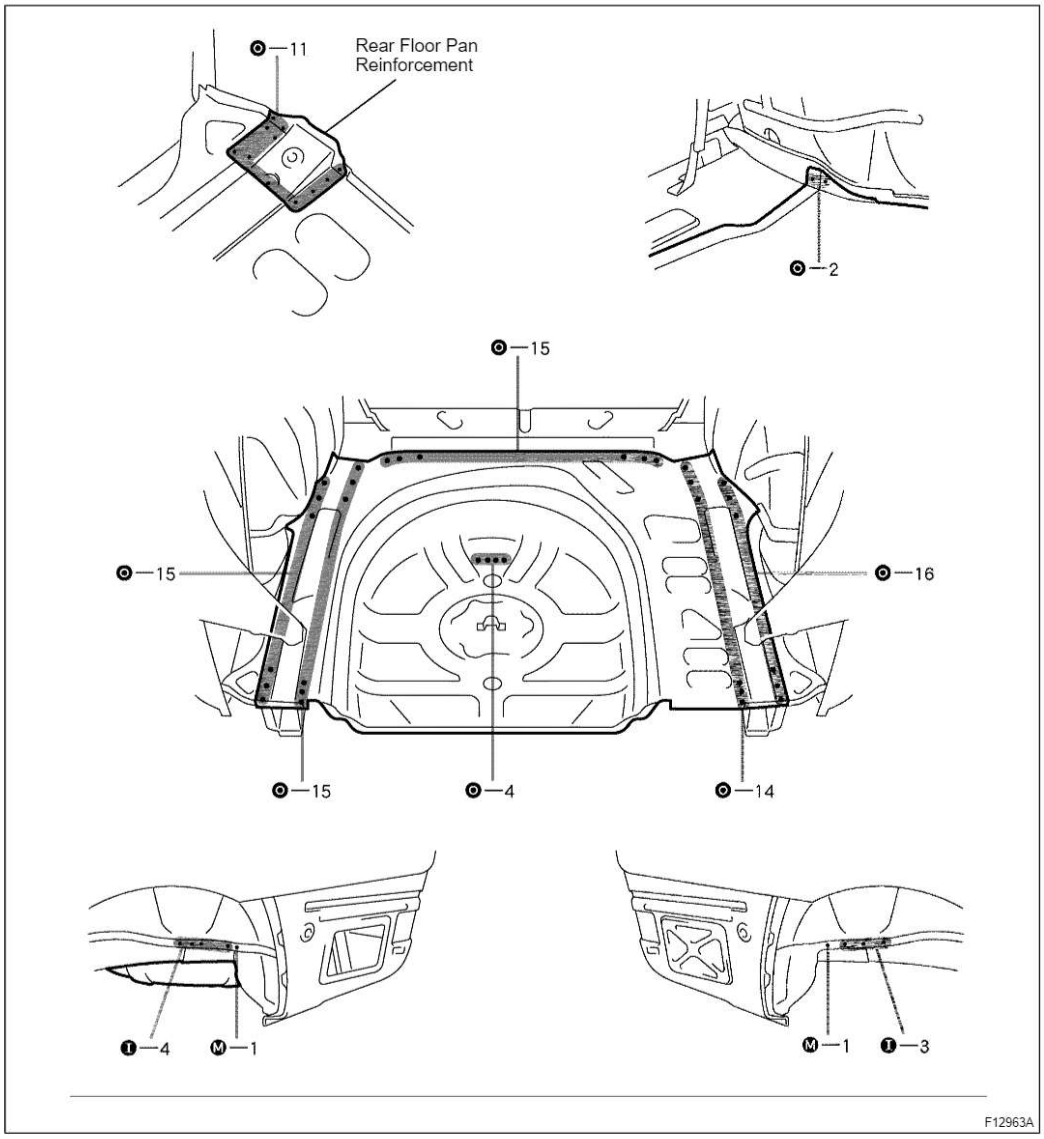
(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

REAR FLOOR PAN (ASSY)

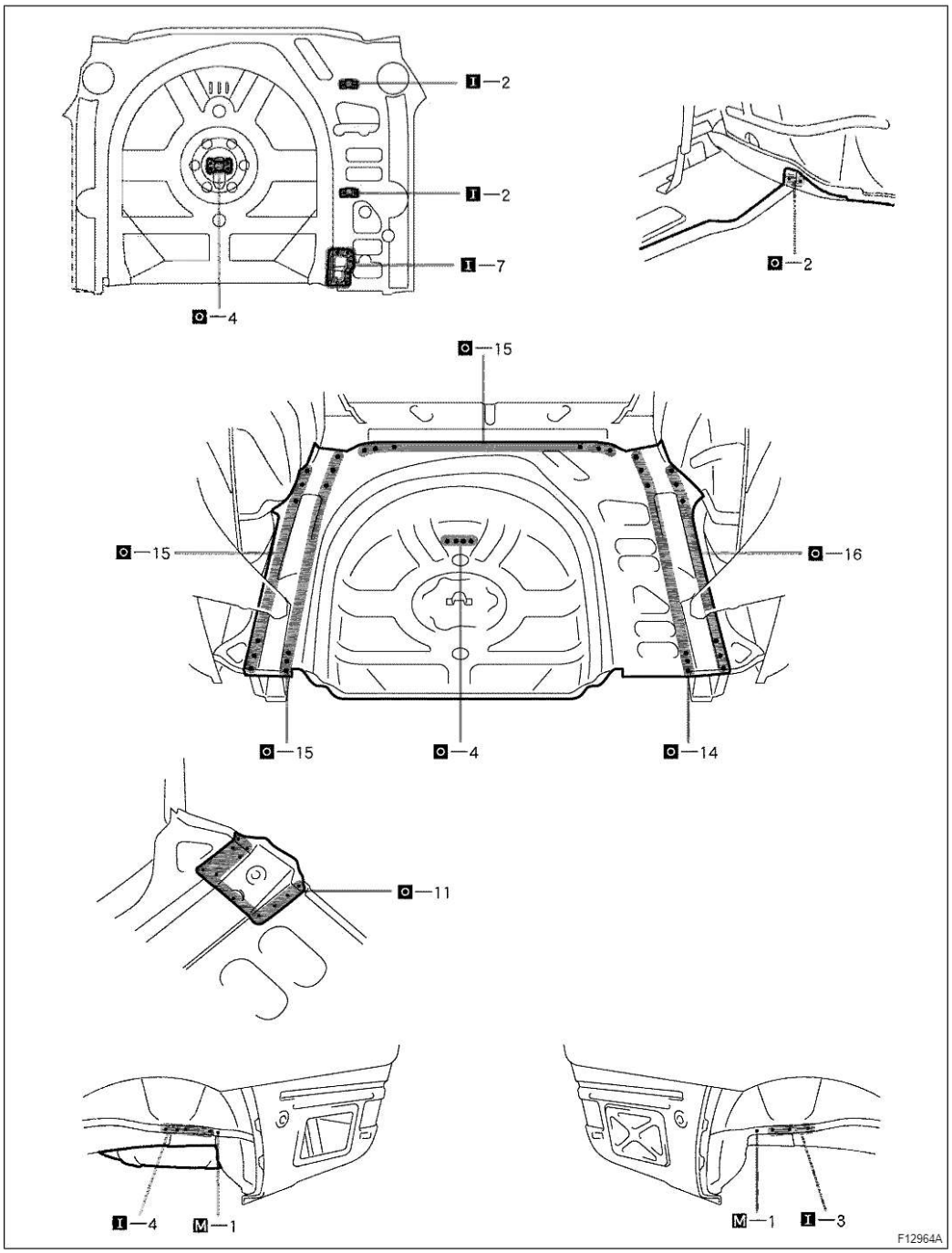
REPLACEMENT

1. **REMOVE BODY LOWER BACK PANEL (See page BP-73)**
2. **REMOVE REAR FLOOR NO.3 CROSSMEMBER (See page BP-79)**
3. **REMOVE REAR FLOOR PAN**

(a) After removing the rear floor pan reinforcement, remove the rear floor pan.



4. INSTALL REAR FLOOR PAN



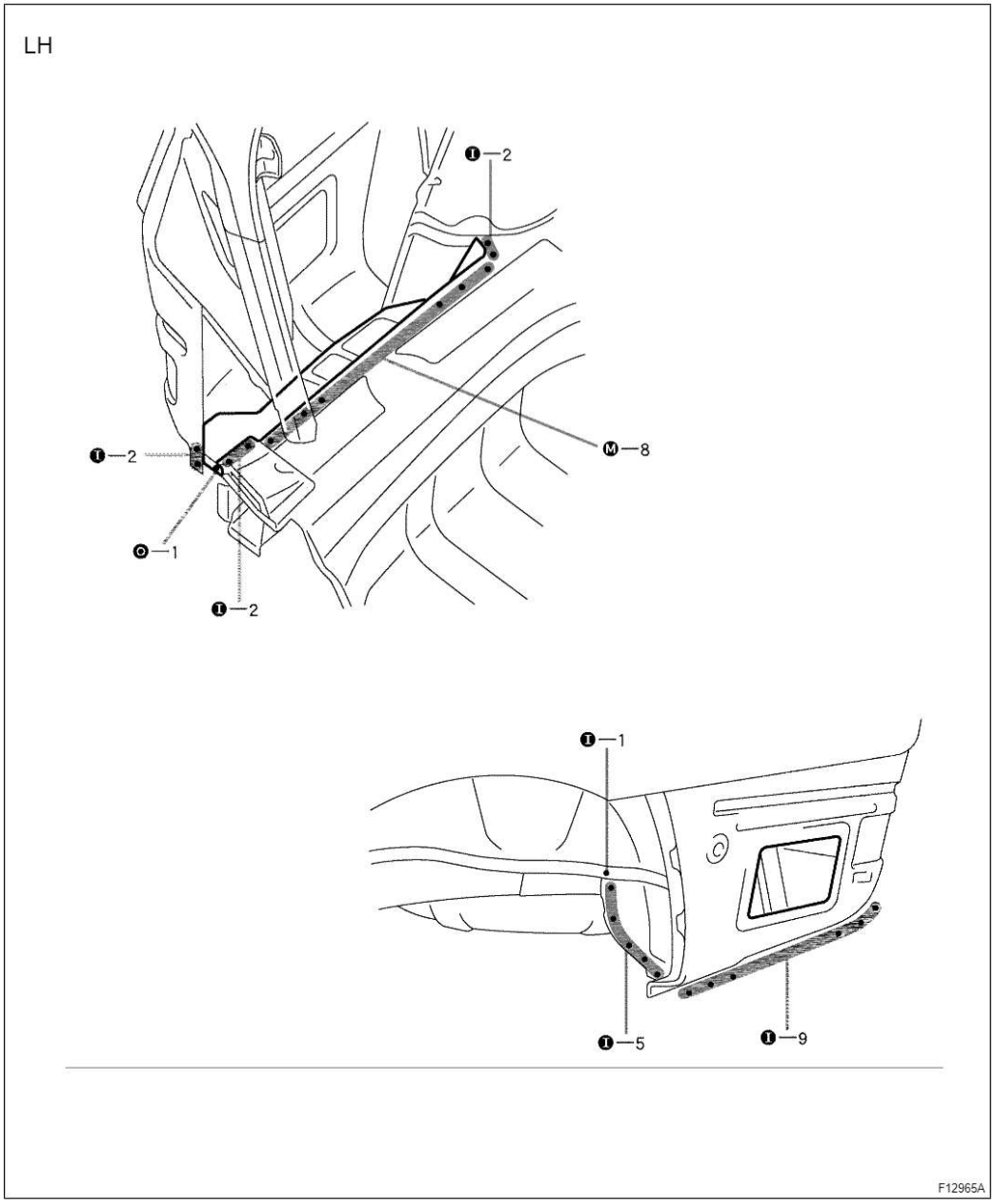
5. **INSTALL REAR FLOOR NO.3 CROSSMEMBER (See page BP-79)**
6. **INSTALL BODY LOWER BACK PANEL (See page BP-73)**
7. **APPLYING SEALER TO THE REAR LUGGAGE COMPARTMENT (See page PC-1)**
8. **APPLYING UNDER COATING (See page PC-6)**
9. **INSTALL SILENCER SHEEET (See page PC-11)**
10. **APPLYING ANTI-RUST AGENT**

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

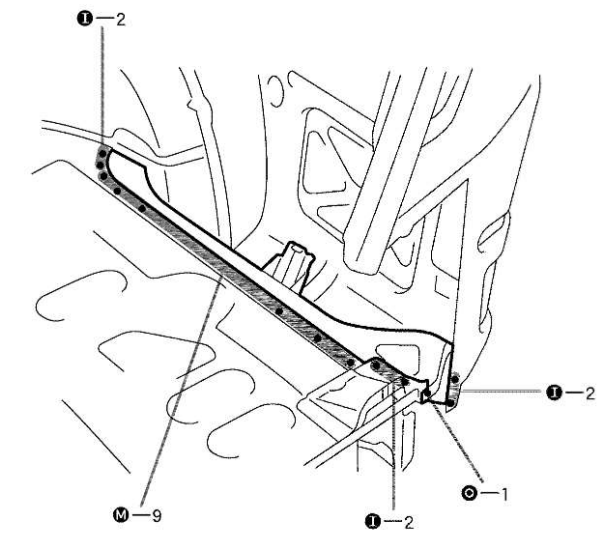
REAR FLOOR SIDE PANEL (ASSY)

REPLACEMENT

1. REMOVE BODY LOWER BACK PANEL (See page BP-73)
2. REMOVE REAR FLOOR SIDE PANEL

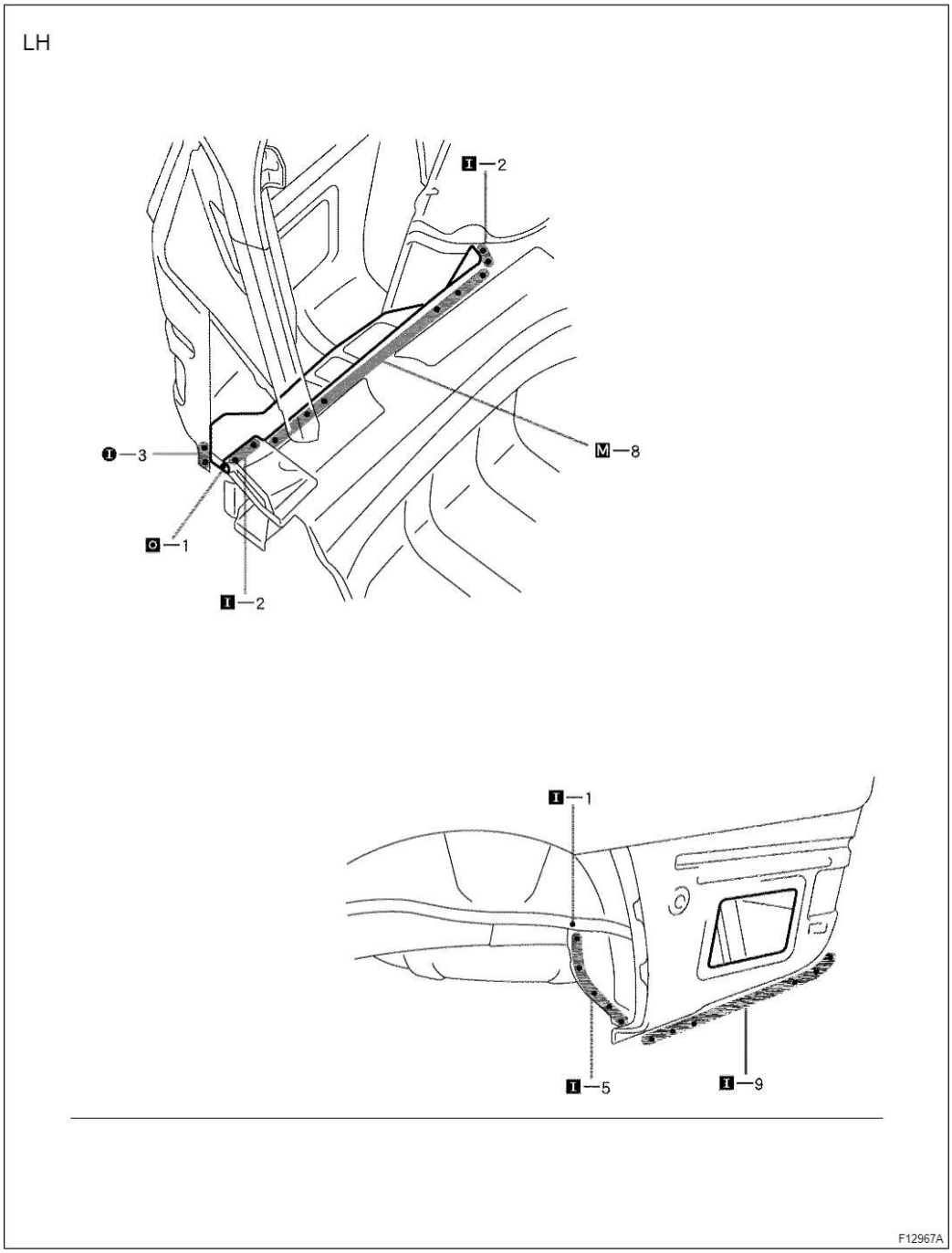


RH

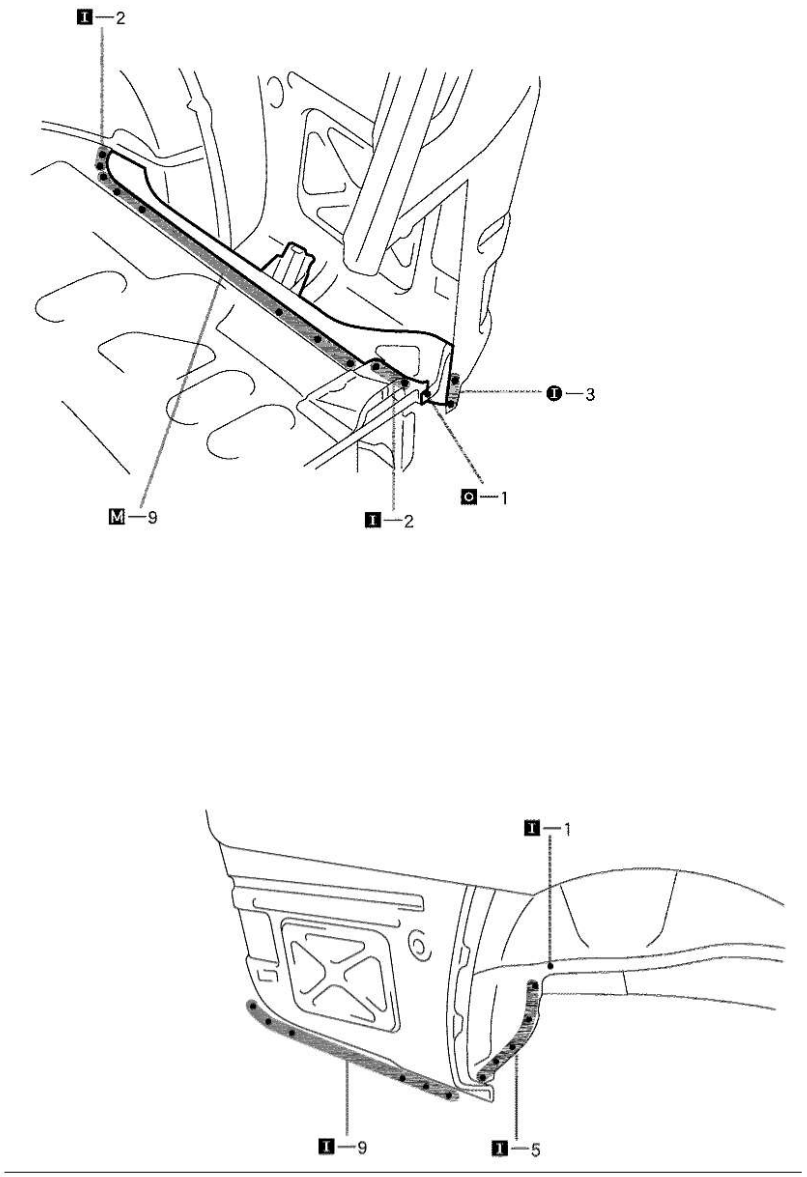


F12966A

3. INSTALL REAR FLOOR SIDE PANEL



RH



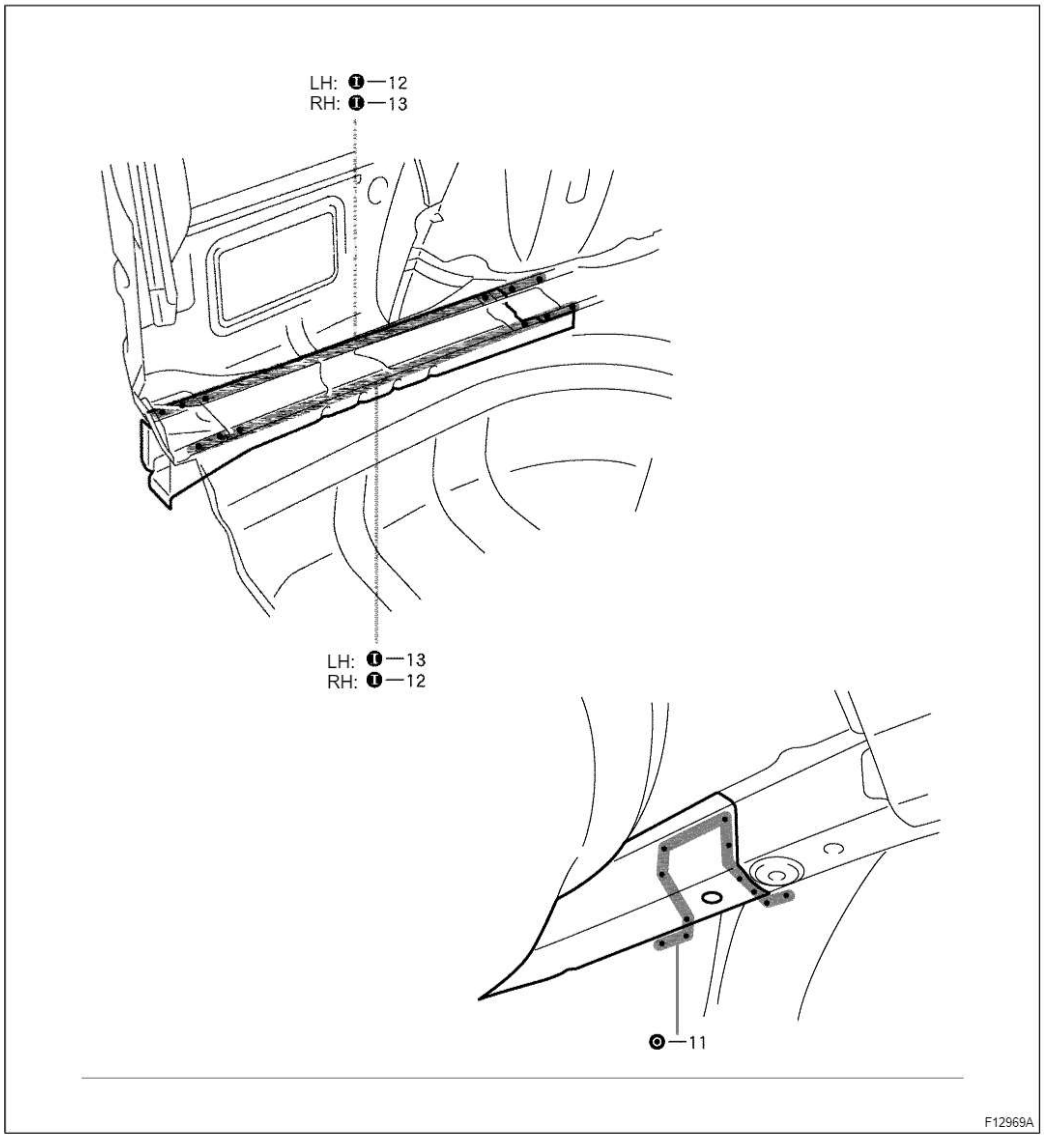
4. **INSTALL BODY LOWER BACK PANEL (See page BP-73)**
5. **APPLYING SEALER TO THE REAR LUGGAGE COMPARTMENT (See page PC-1)**
6. **APPLYING UNDER COATING (See page PC-6)**
7. **INSTALL SILENCER SHEET (See page PC-11)**
8. **APPLYING ANTI-RUST AGENT**

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

REAR FLOOR SIDE REAR MEMBER (ASSY)

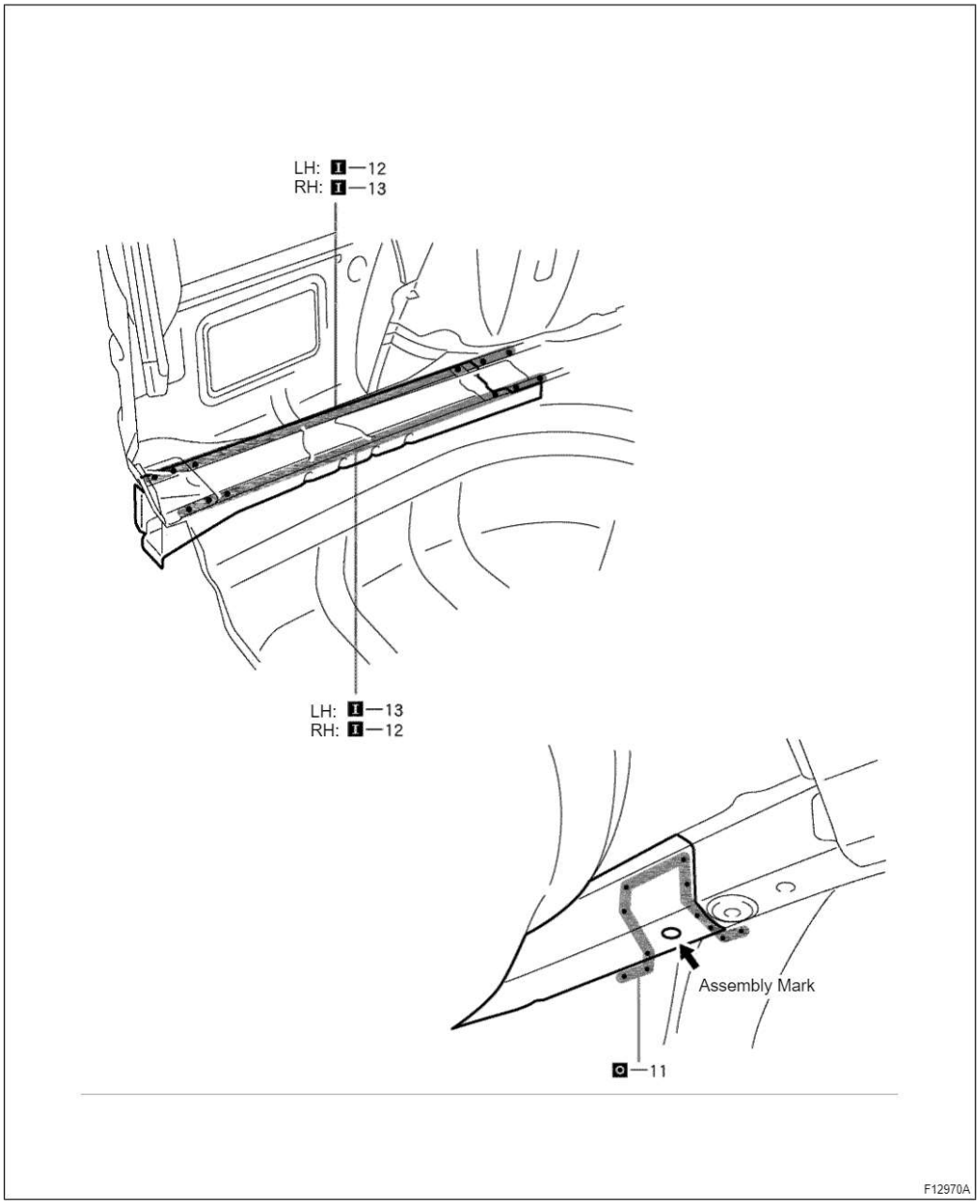
REPLACEMENT

1. REMOVE BODY LOWER BACK PANEL (See page BP-73)
2. REMOVE REAR FLOOR NO.3 CROSSMEMBER (See page BP-79)
3. REMOVE REAR FLOOR SIDE REAR MEMBER



4. INSTALL REAR FLOOR SIDE REAR MEMBER

(a) When temporarily installing the new parts, determine the installation position by the assembly mark. Then, measure each part in accordance with the body dimension diagram.



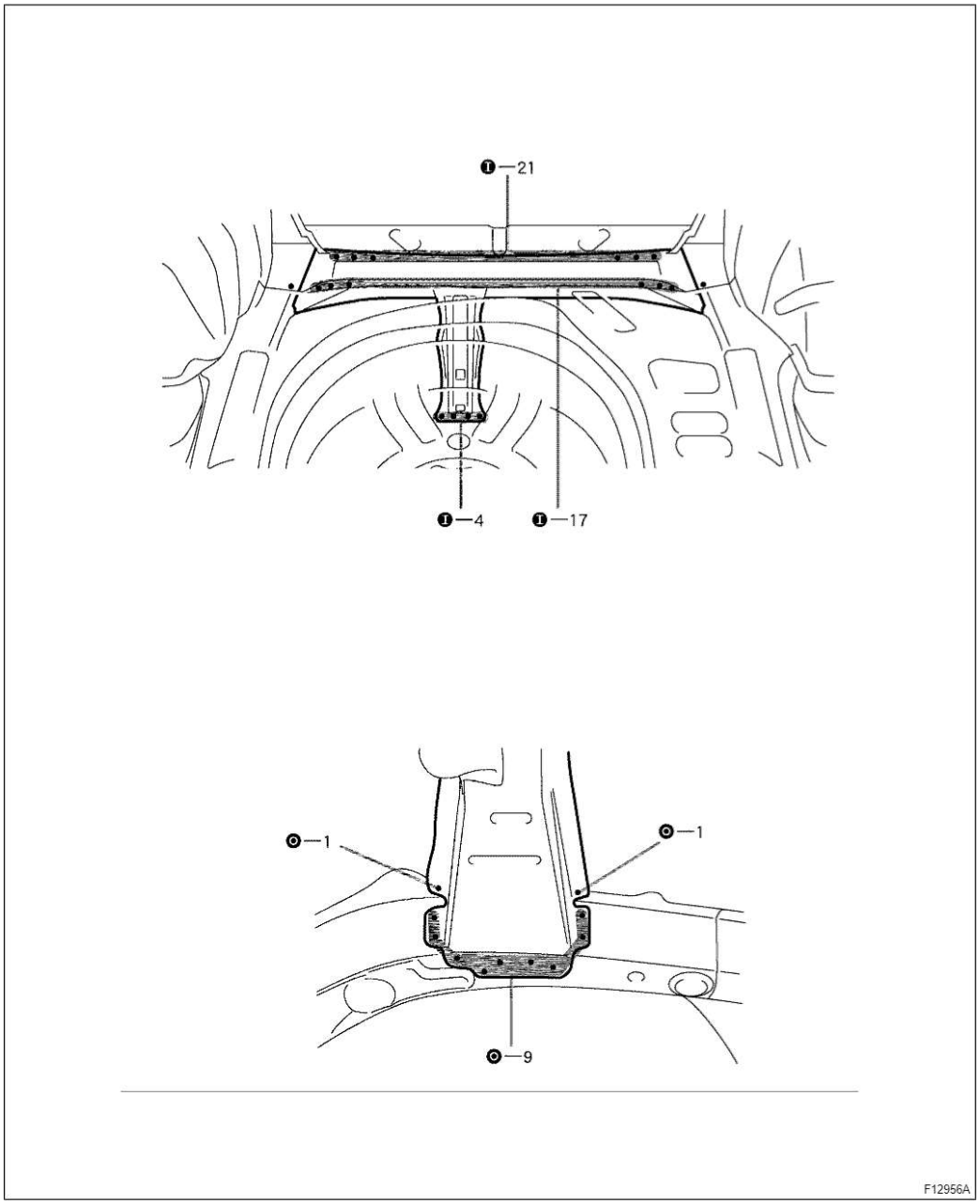
5. **MEASURING THE UNDER BODY DIMENSIONS (See page BP-100)**
6. **INSTALL REAR FLOOR NO.3 CROSSMEMBER (See page BP-79)**
7. **INSTALL BODY LOWER BACK PANEL (See page BP-73)**
8. **APPLYING SEALER TO THE REAR LUGGAGE COMPARTMENT (See page PC-1)**
9. **APPLYING UNDER COATING (See page PC-6)**
10. **INSTALL SILENCER SHEET (See page PC-11)**
11. **APPLYING AUTI-RUST AGENT**

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld spots.

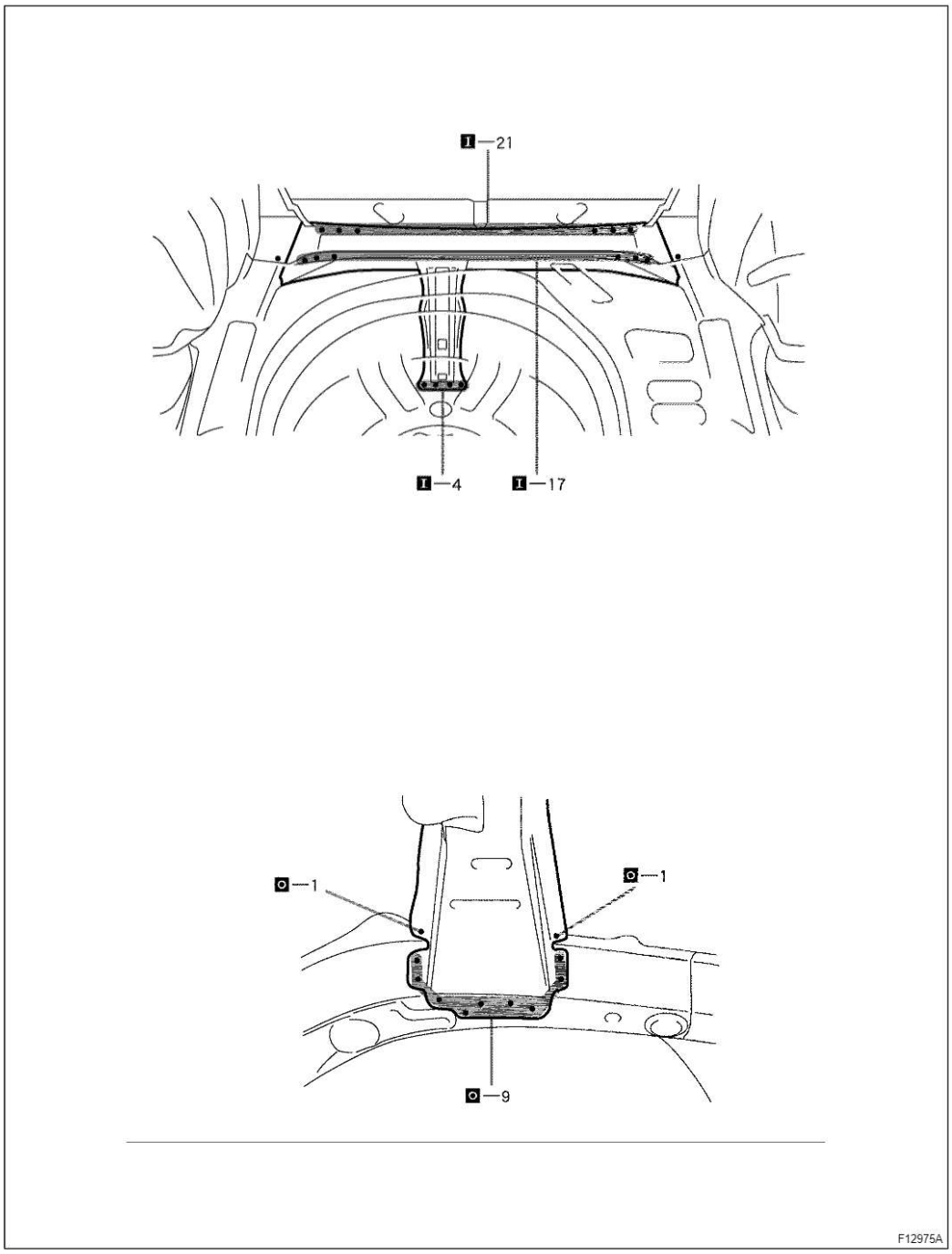
REAR FLOOR NO.2 CROSSMEMBER (ASSY)

REPLACEMENT

1. REMOVE REAR FLOOR NO.2 CROSSMEMBER



2. INSTALL REAR FLOOR NO.2 CROSSMEMBER



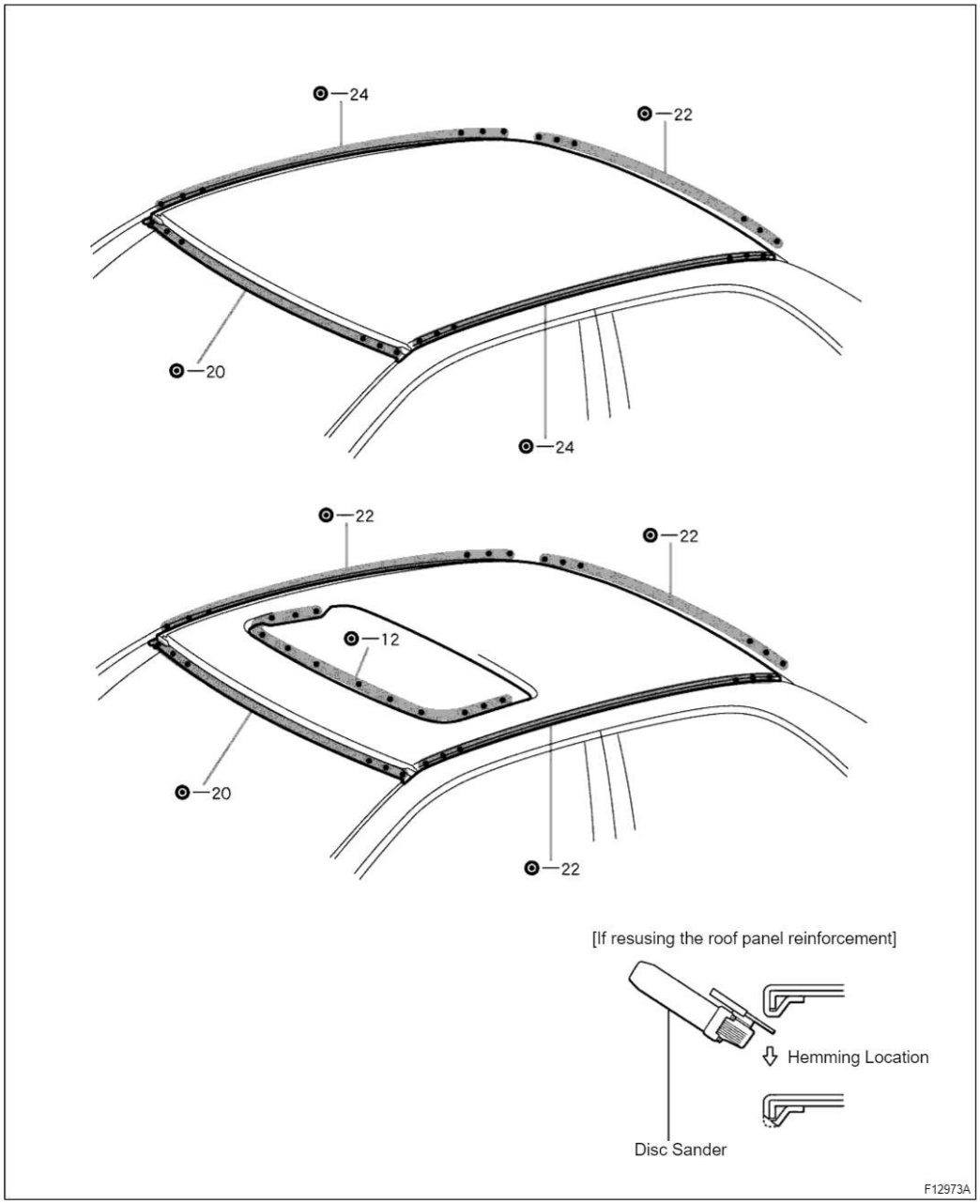
3. **MEASURING THE UNDER BODY DIMENSIONS (See page BP-100)**
4. **APPLYING SEALER TO THE INSIDE OF THE VEHICLE (See page PC-1)**
5. **APPLYING SEALER TO THE REAR LUGGAGE COMPARTMENT (See page PC-1)**
6. **APPLYING UNDER COATING (See page PC-6)**
7. **INSTALL SILENCER SHEET (See page PC-11)**
8. **APPLYING ANTI-RUST AGENT**

(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structoral weld spots.

ROOF PANEL (ASSY)

REPLACEMENT

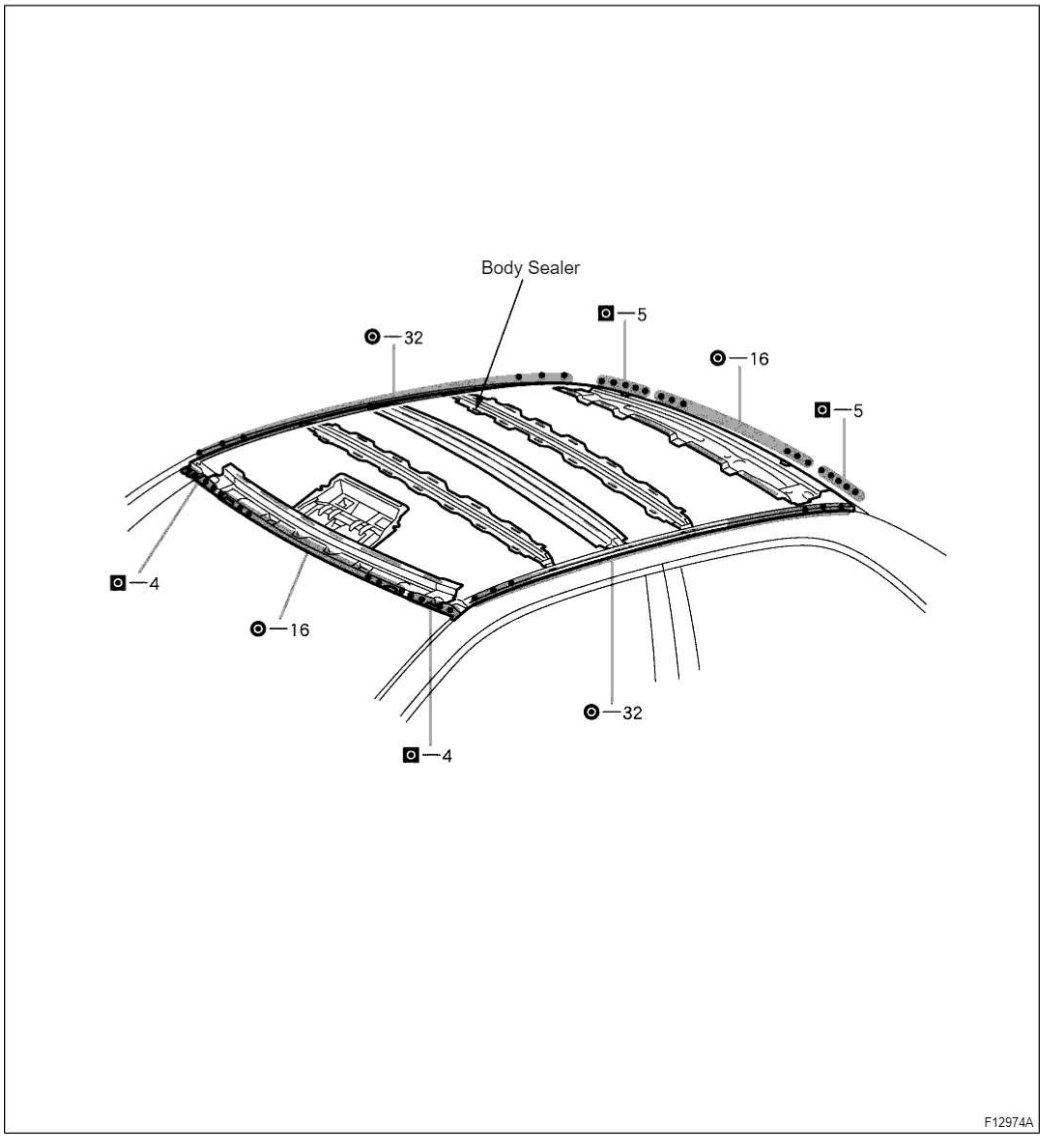
1. REMOVE ROOF PANEL



2. INSTALL ROOF PANEL: w/o Moon Roof

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

HINT:
Apply just enough sealer for the new parts to make contact.



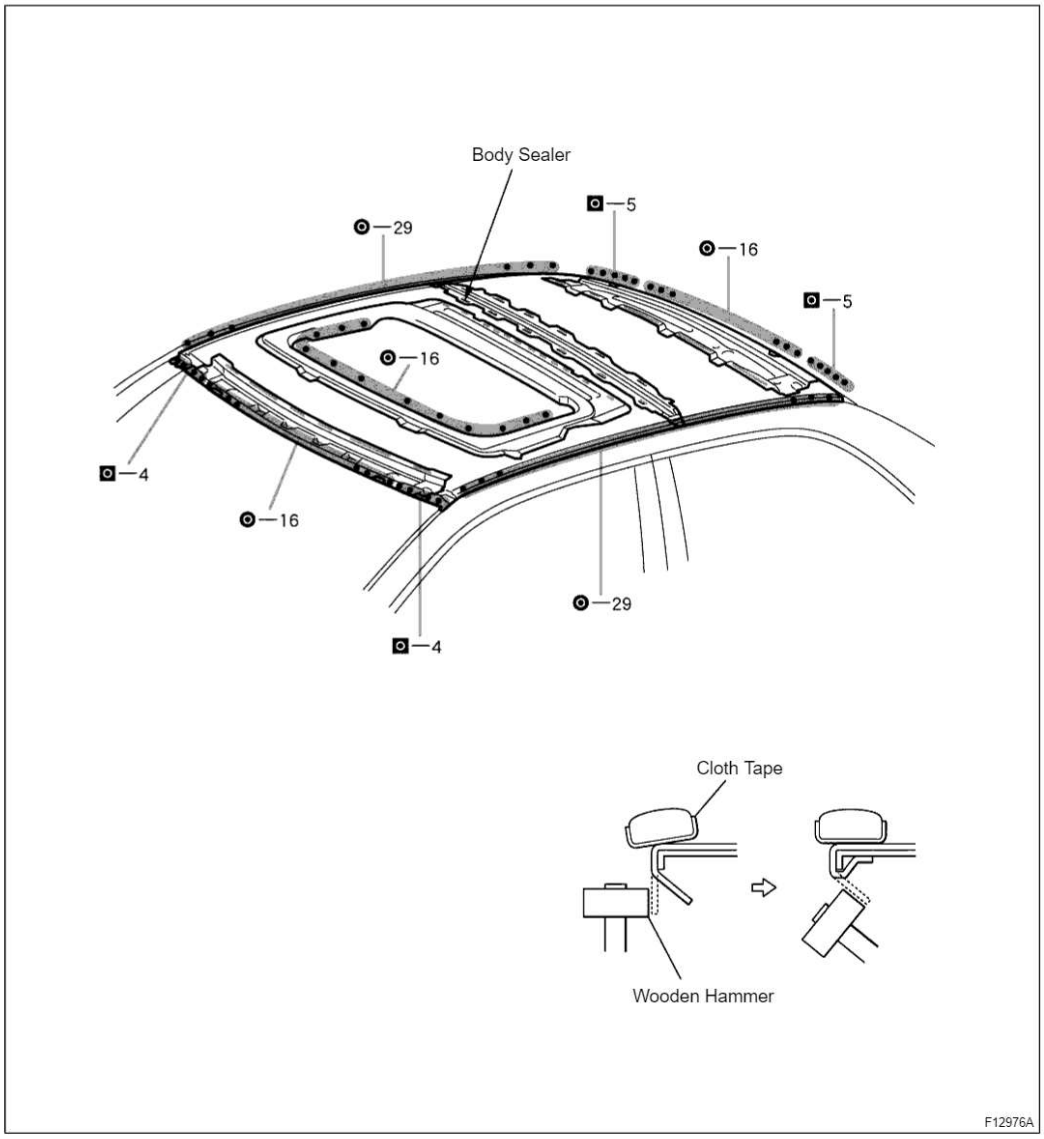
3. INSTALL ROOF PANEL: w/ Moon Roof

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

HINT:
Apply just enough sealer for the new parts to make contact.

(b) Bend the flange hem with a wooden hammer and dolly.

HINT:
Perform hemming three steps, being careful not to warp the panel.



4. **MEASURING THE OPENING PORTION DIMENSIONS** **(See page BP-100)**
5. **APPLYING SEALER TO THE ENGINE COMPARTMENT** **(See page PC-1)**
6. **APPLYING SEALER TO THE INSIDE OF THE VEHICLE** **(See page PC-1)**
7. **APPLYING SEALER TO THE REAR LUGGAGE COMPARTMENT** **(See page PC-1)**
8. **CHARGING THE POLYURETHANE FOAM** **(See page PC-9)**
9. **APPLYING ANTI-RUST AGENT**

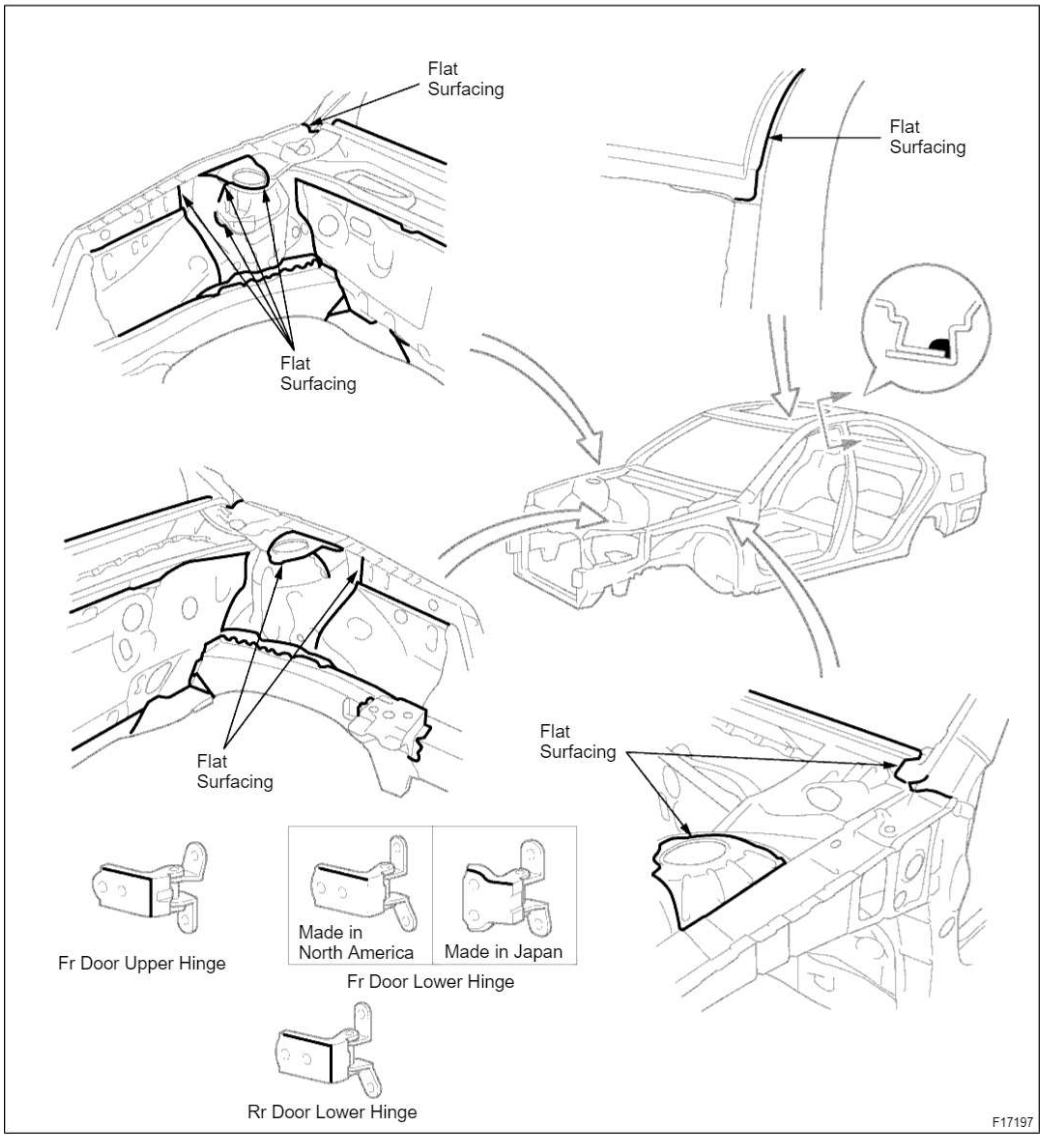
(a) After applying the top coat layer, apply the anti-rust agent to the inside of the necked section structural weld sports.

BODY PANEL SEALING AREAS

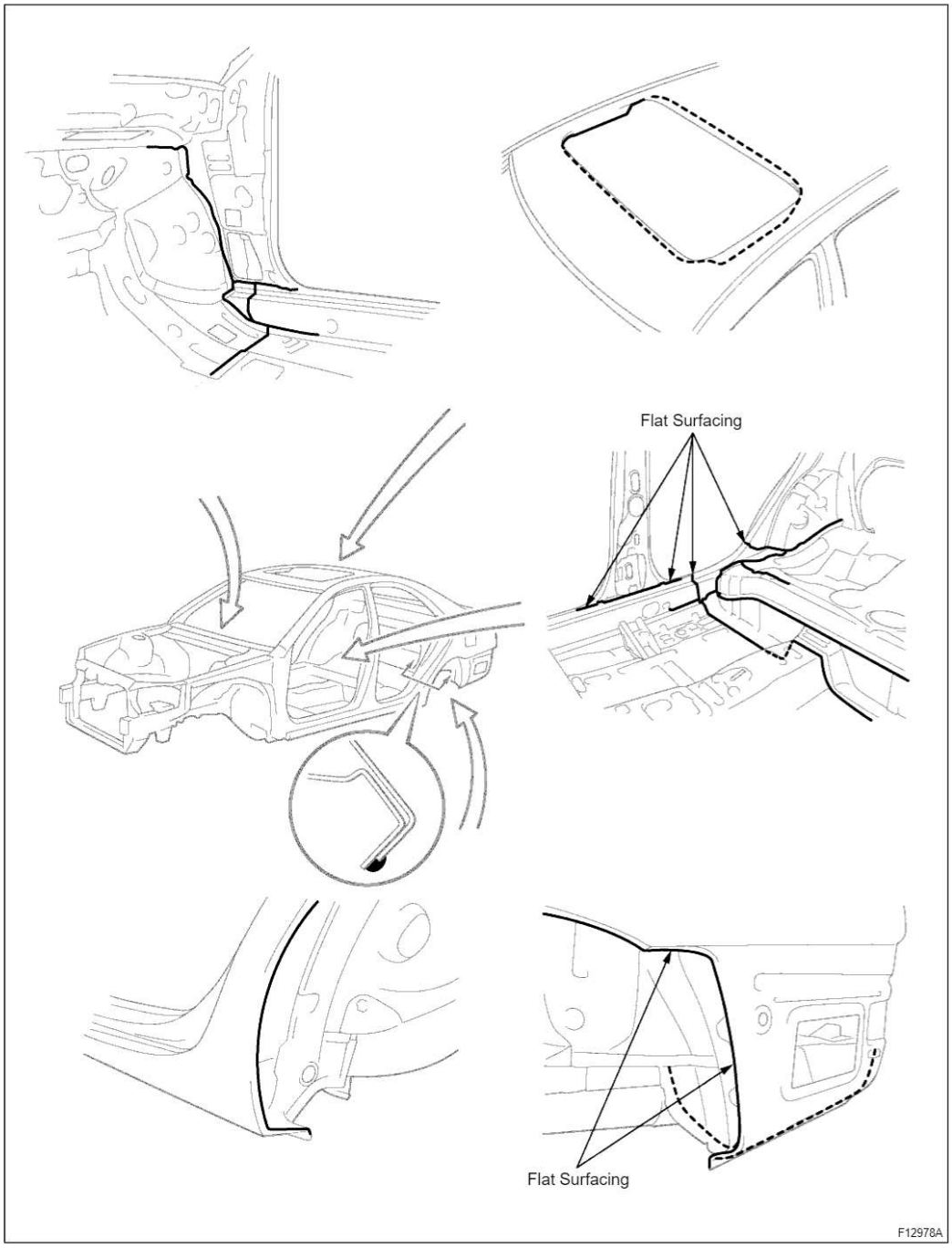
HINT:

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.

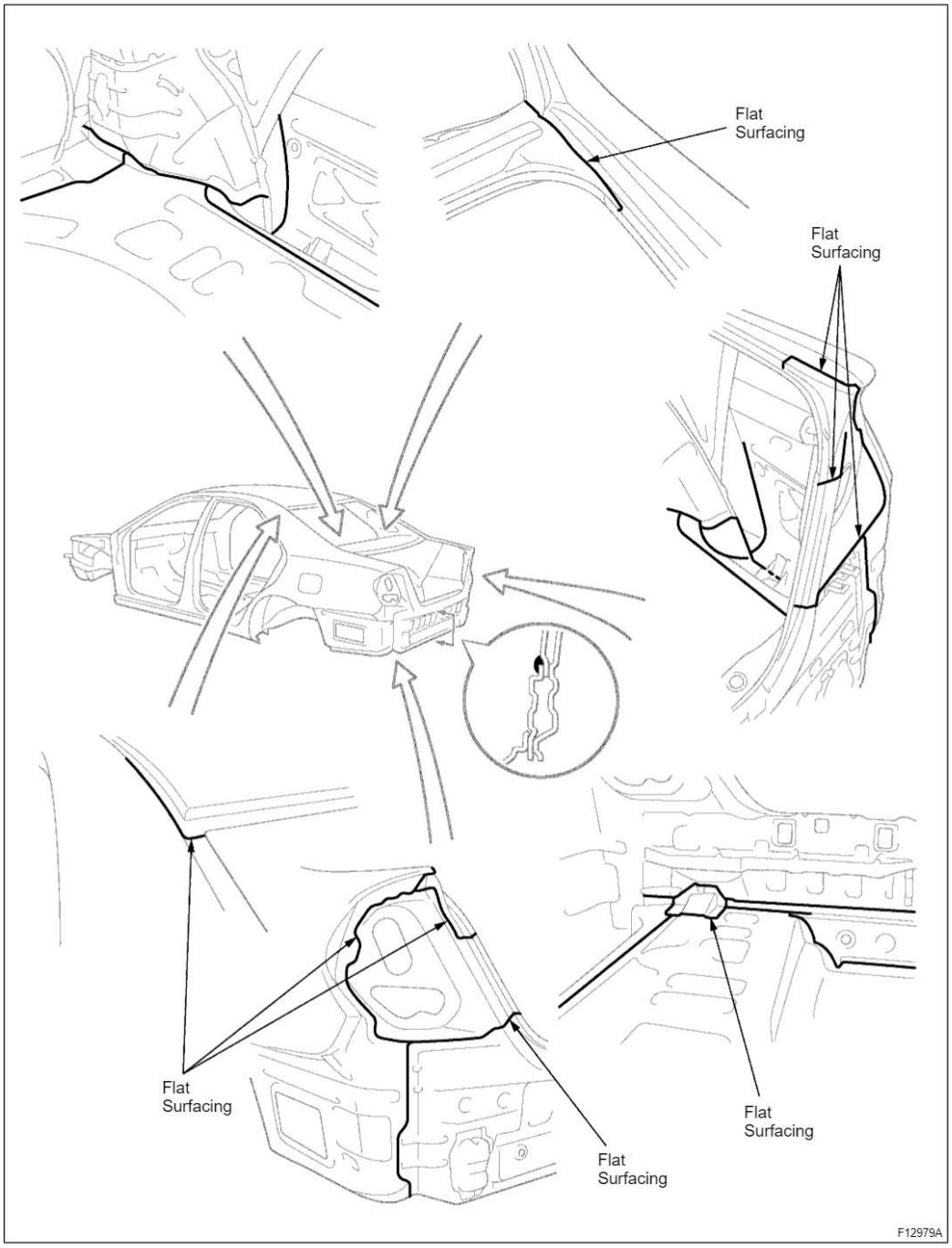
1. ENGINE COMPARTMENT



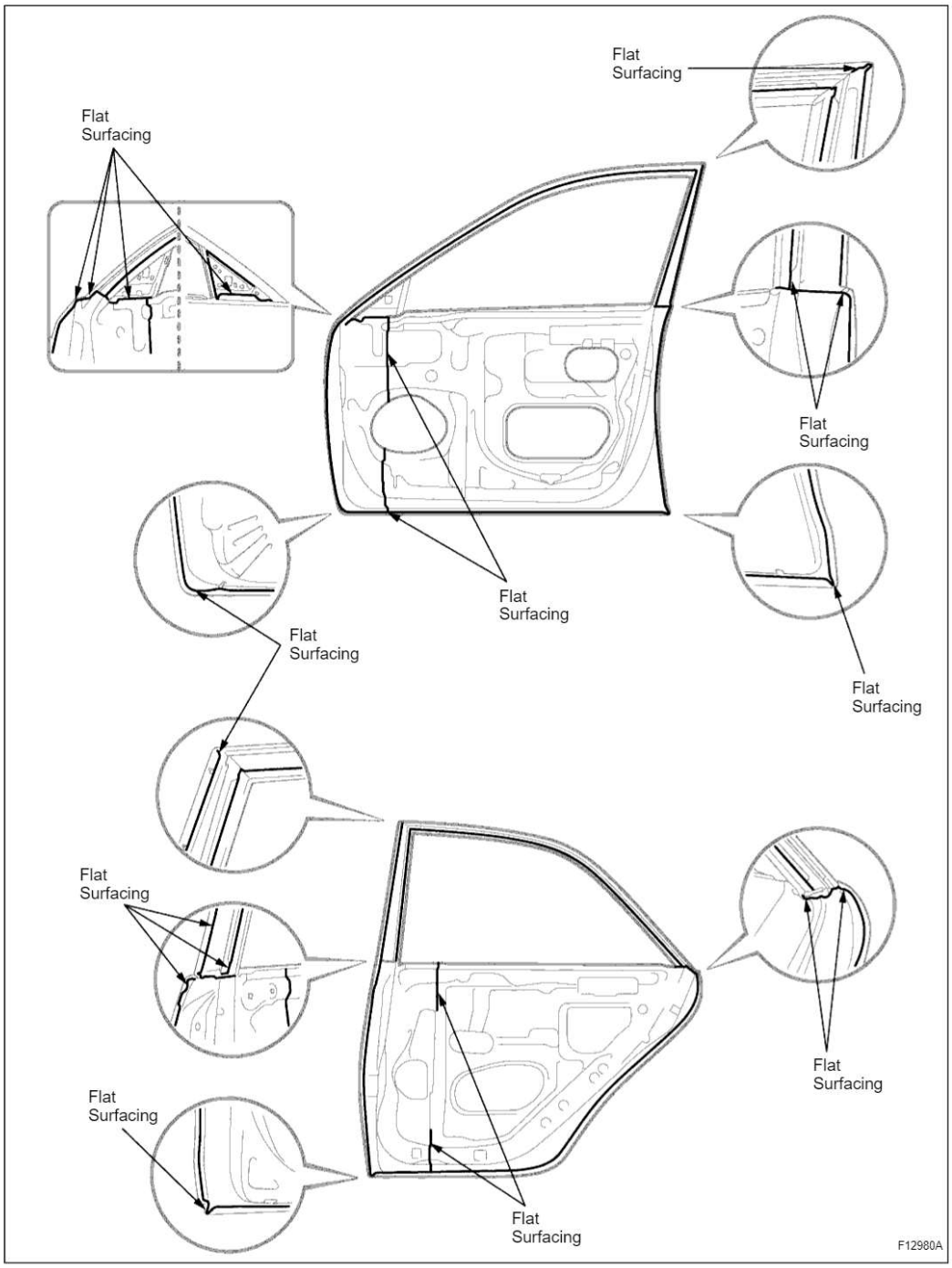
2. INSIDE

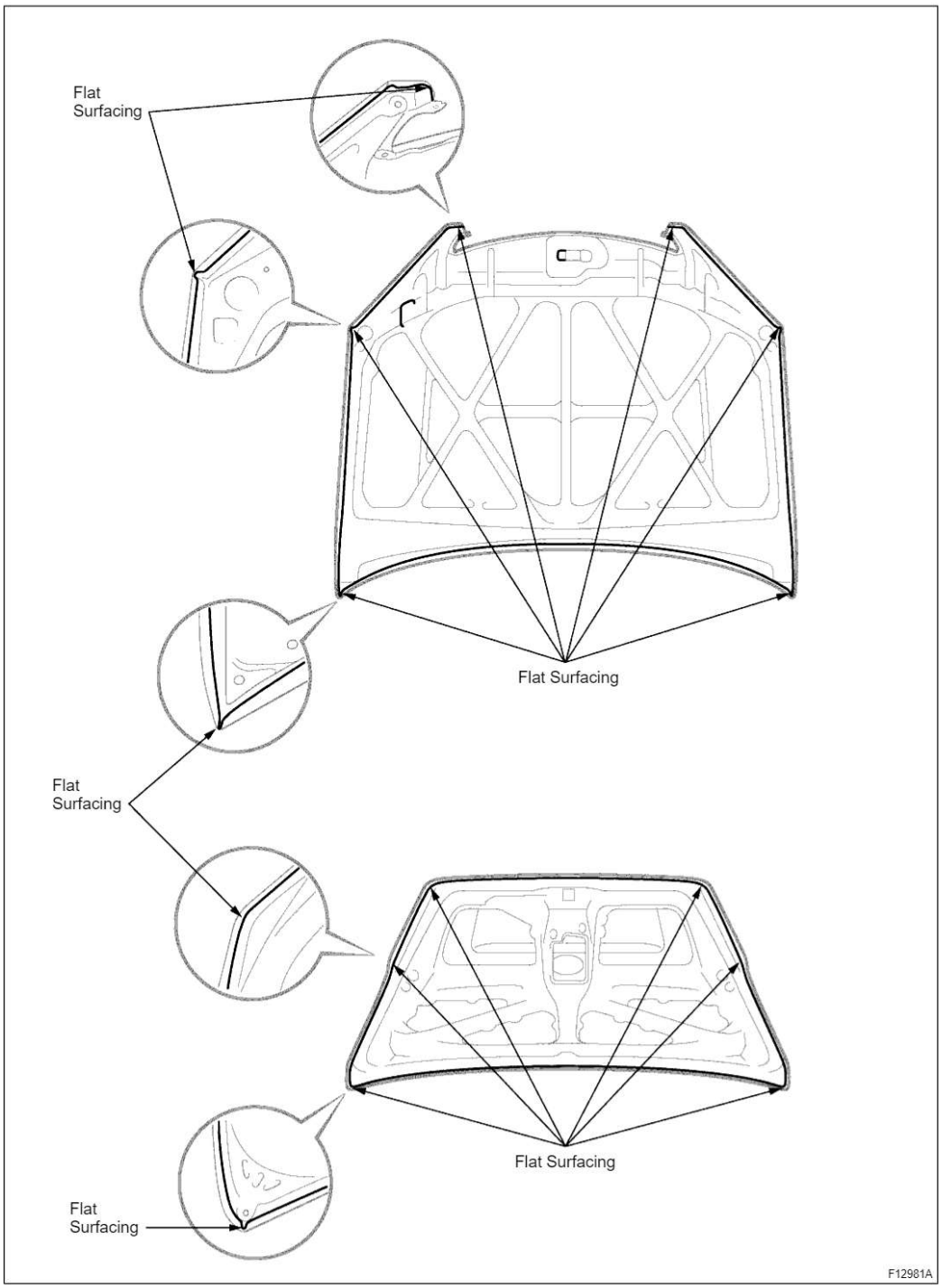


3. REAR LUGGAGE COMPARTMENT



4. DOOR PARTS

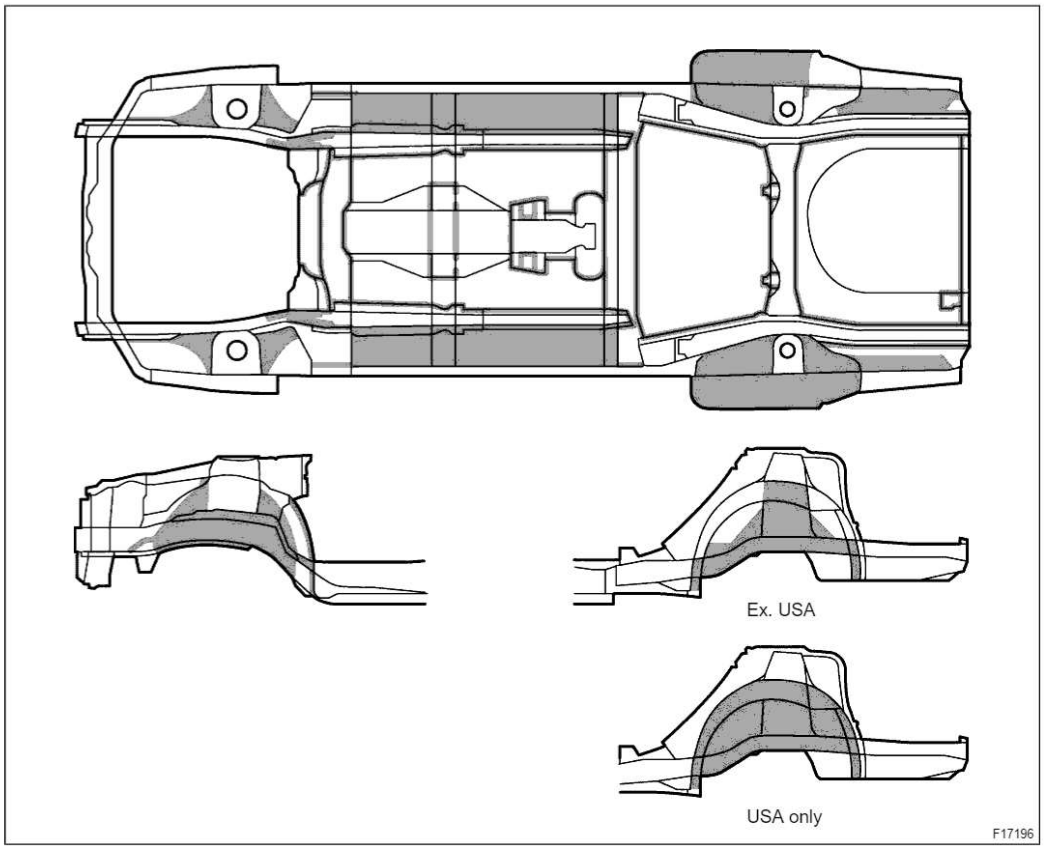

Flat Surfacing
Flat Surfacing
Flat Surfacing
Flat Surfacing
Flat Surfacing
Flat Surfacing
Flat Surfacing
Flat Surfacing
Flat Surfacing
Flat Surfacing
F12980A


Flat
Surfacing
Flat Surfacing
Flat
Surfacing
Flat Surfacing
Flat
Surfacing
F12981A

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 accidently coated, wipe off the coating immediately.
3. Apply the first coating of undercoat to all welded areas and panel joints, then apply as 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, crackes, etc., be sure to repair as necessary.
8. Before the undercoat apply sealer allowing rust prevention to be attained.



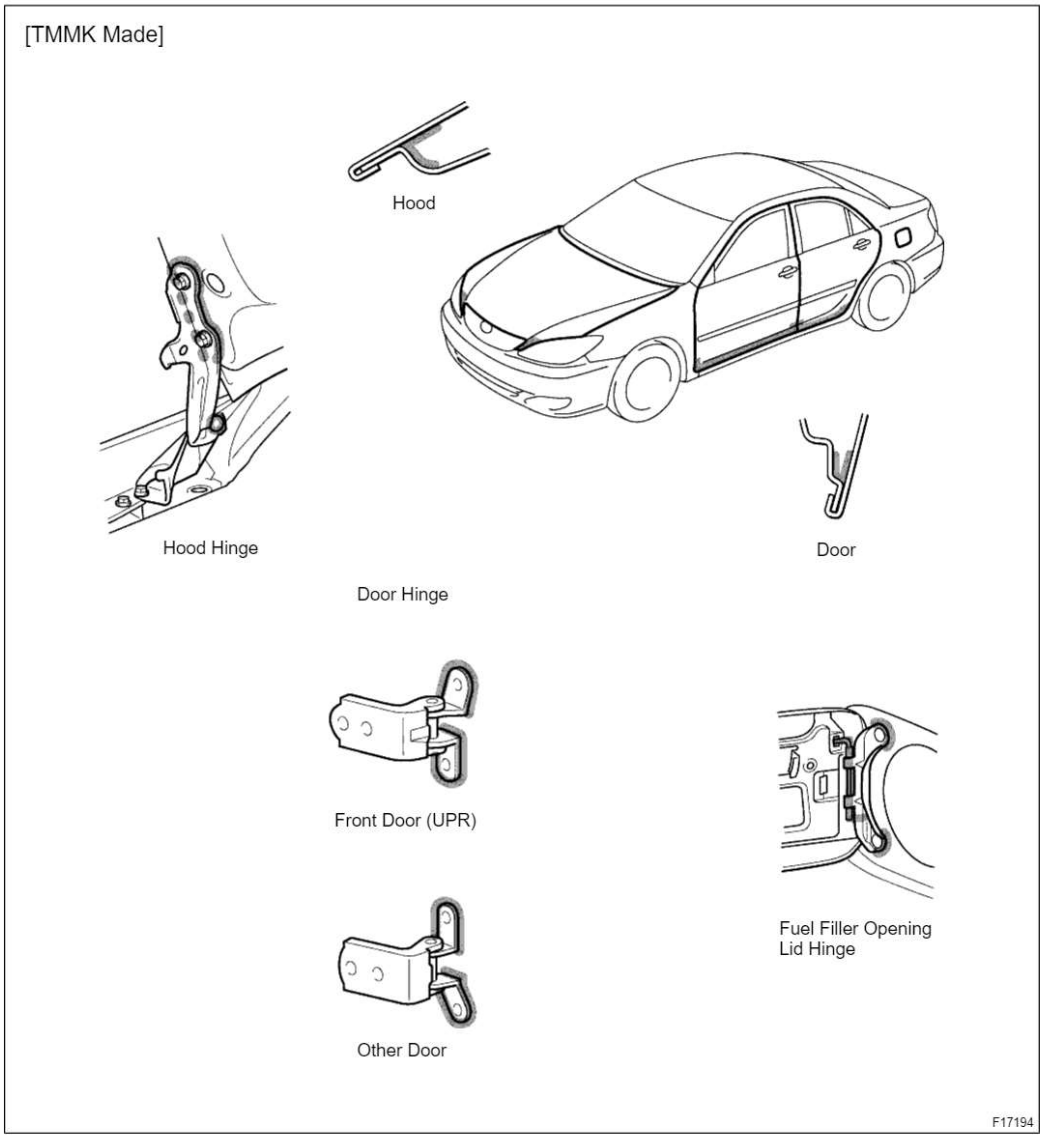
REFERENCE: Referring to the notes above, undercoating should be applied according to the specifications for your country.

BODY PANEL ANTI-RUST AGENT (WAX) APPLICATION AREAS

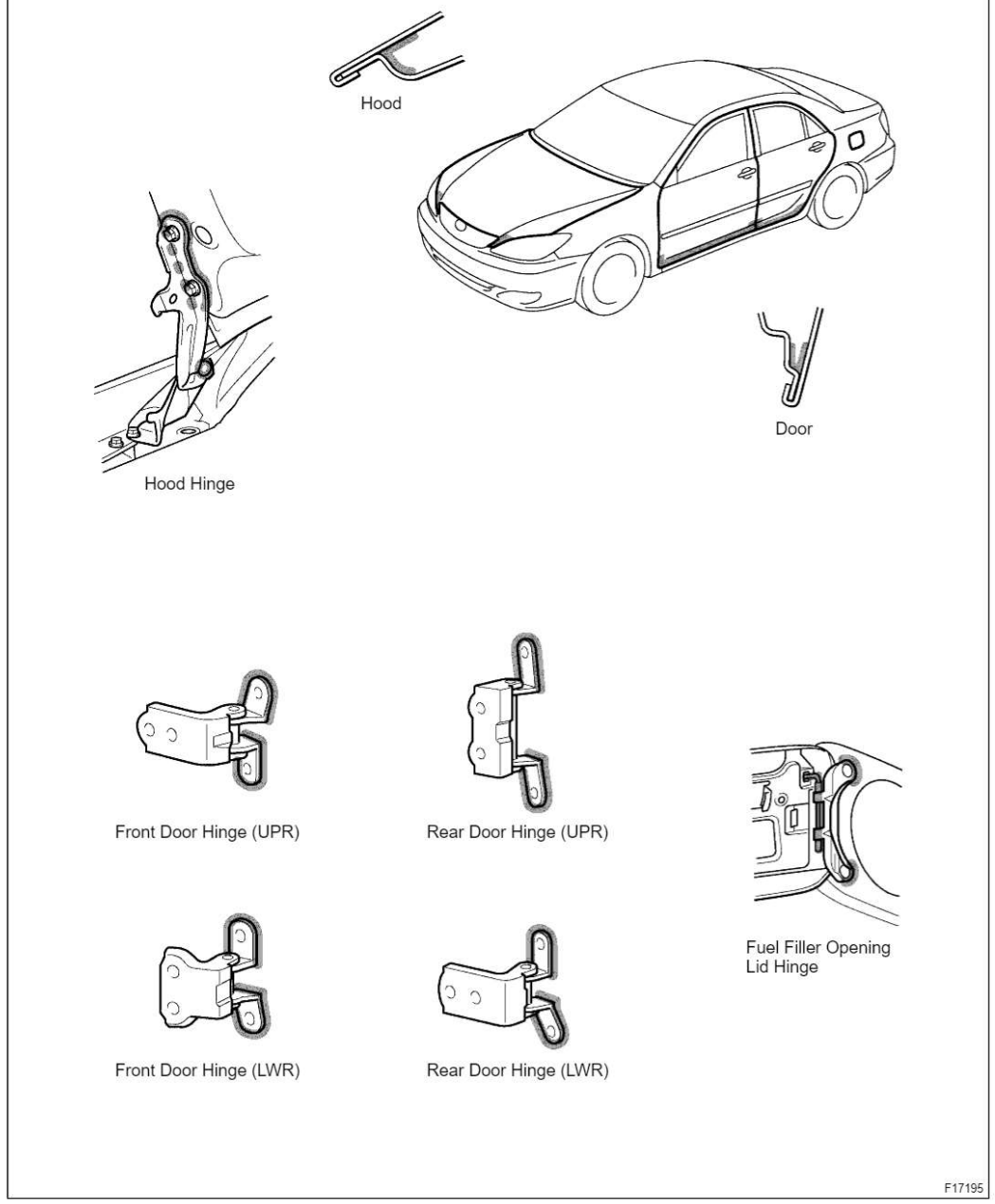
HINT:

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 accidently applied to other areas.

[TMMK Made]



[TMC Made]

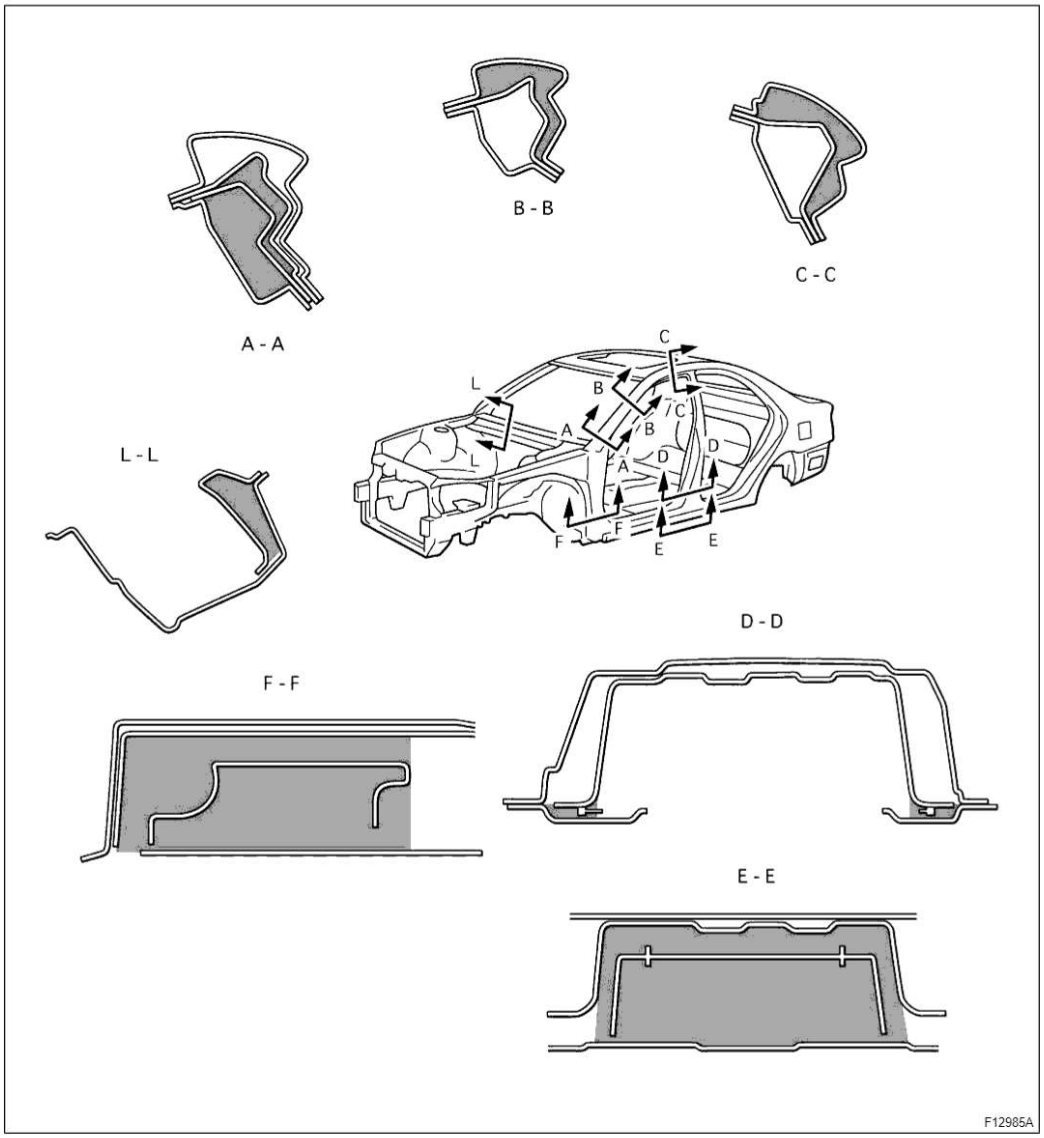

Hood
Hood Hinge
Door
Front Door Hinge (UPR)
Rear Door Hinge (UPR)
Fuel Filler Opening Lid Hinge
Front Door Hinge (LWR)
Rear Door Hinge (LWR)
F17195

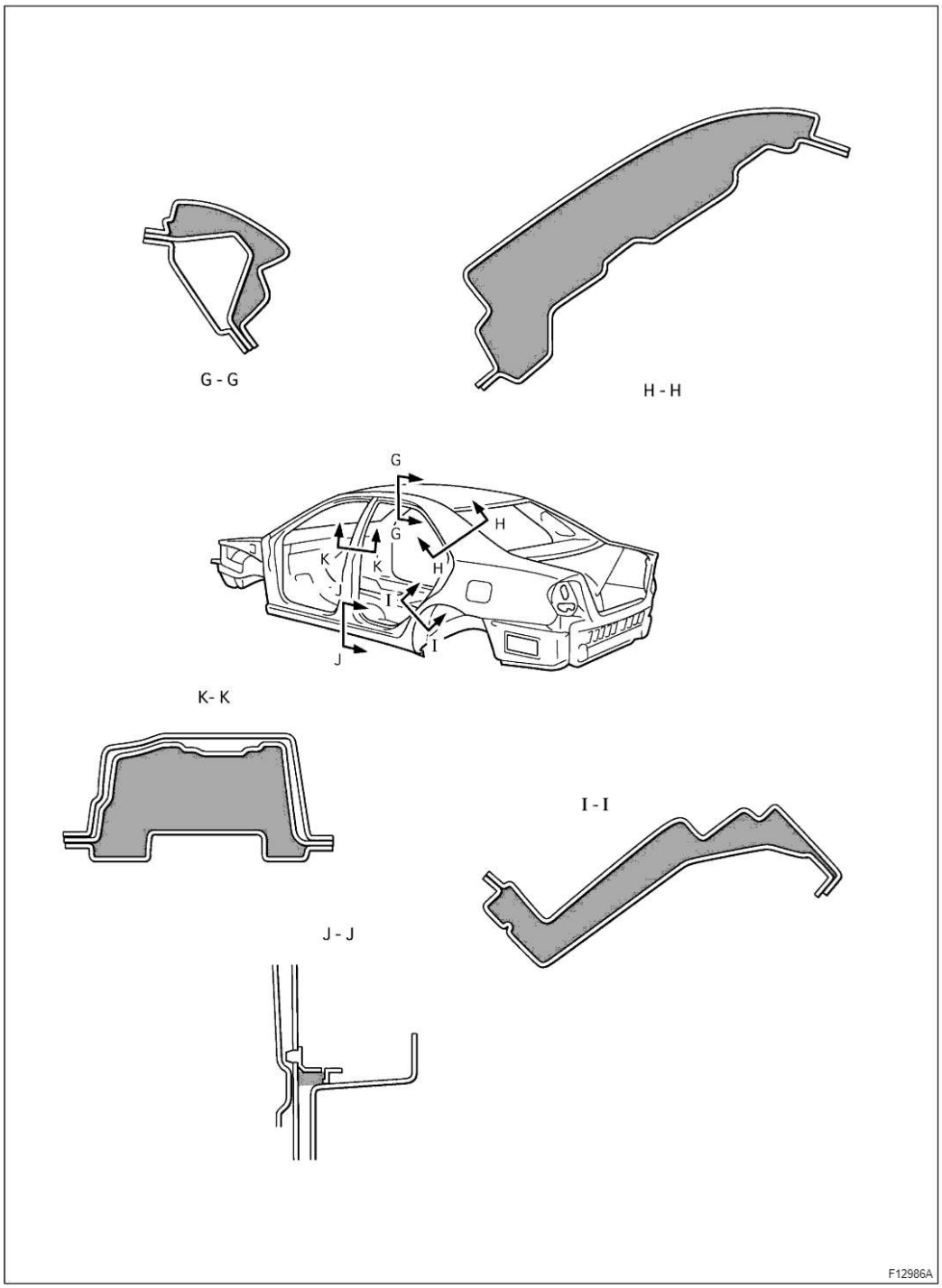
FOAMED MATERIAL APPLICATION AREAS

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

HINT:

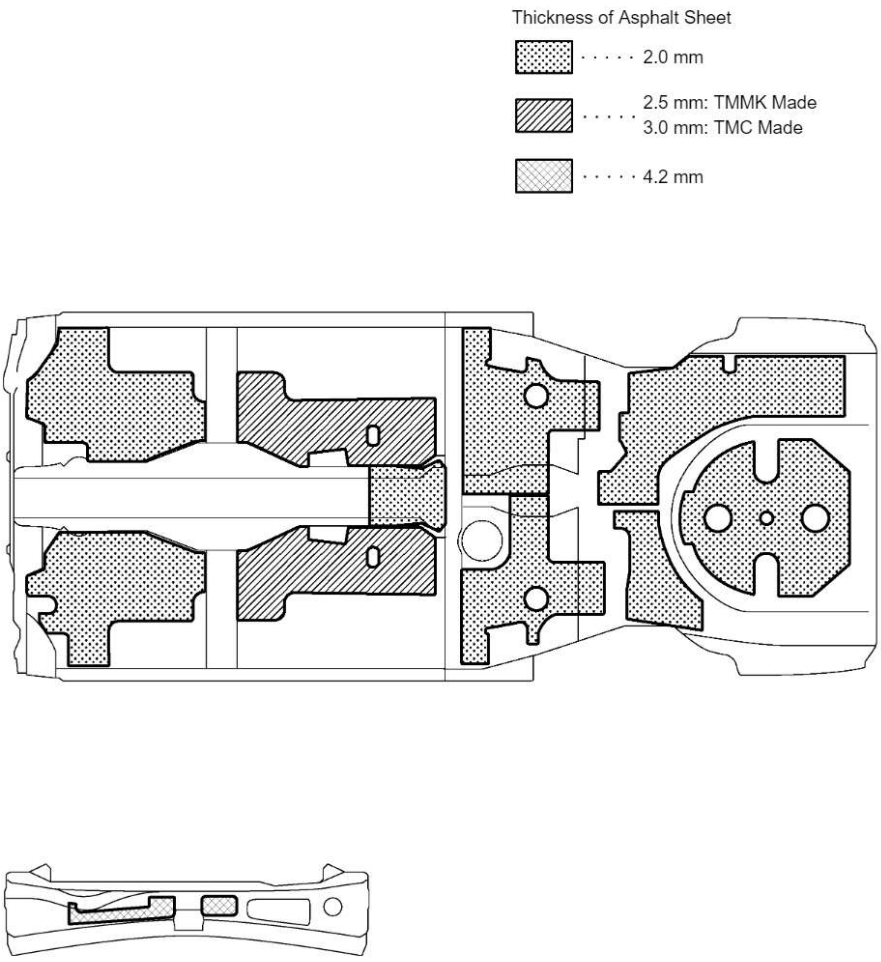
1. Use the service holes located on the reverse side of the body panel to refill with foamed materials.
2. When handling foamed material, follow the directions of the material's manufacturer.



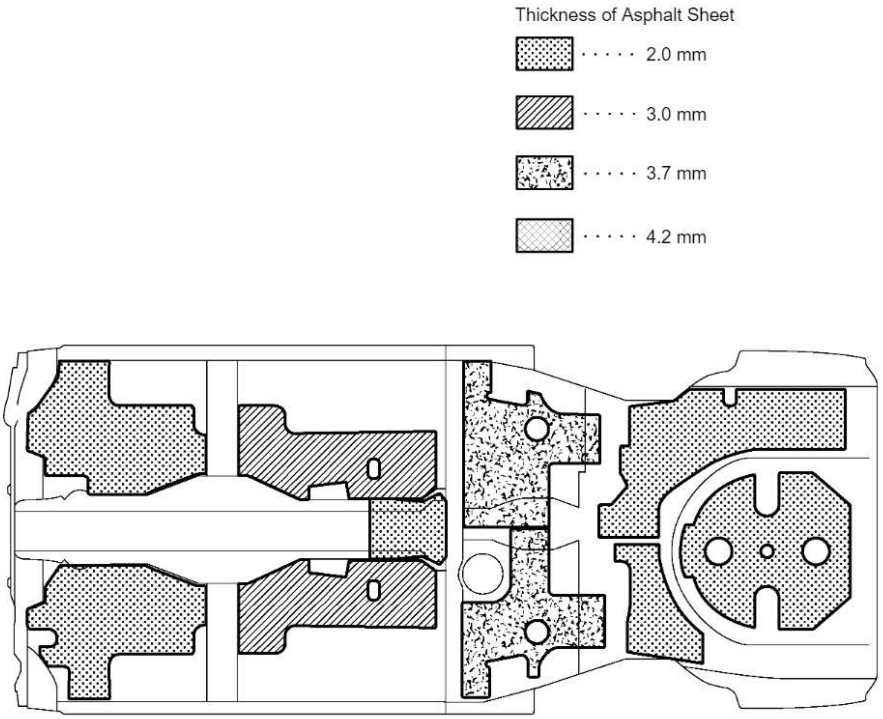

G - G
H - H
G
H
K
K
J
I
J
I
K- K
I - I
J - J
F12986A

SILENCER SHEET INSTALLATION AREAS

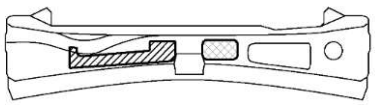
[North America Spec.]



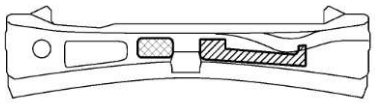
[Ex. North America Spec.]



〔LHD〕



〔RHD〕



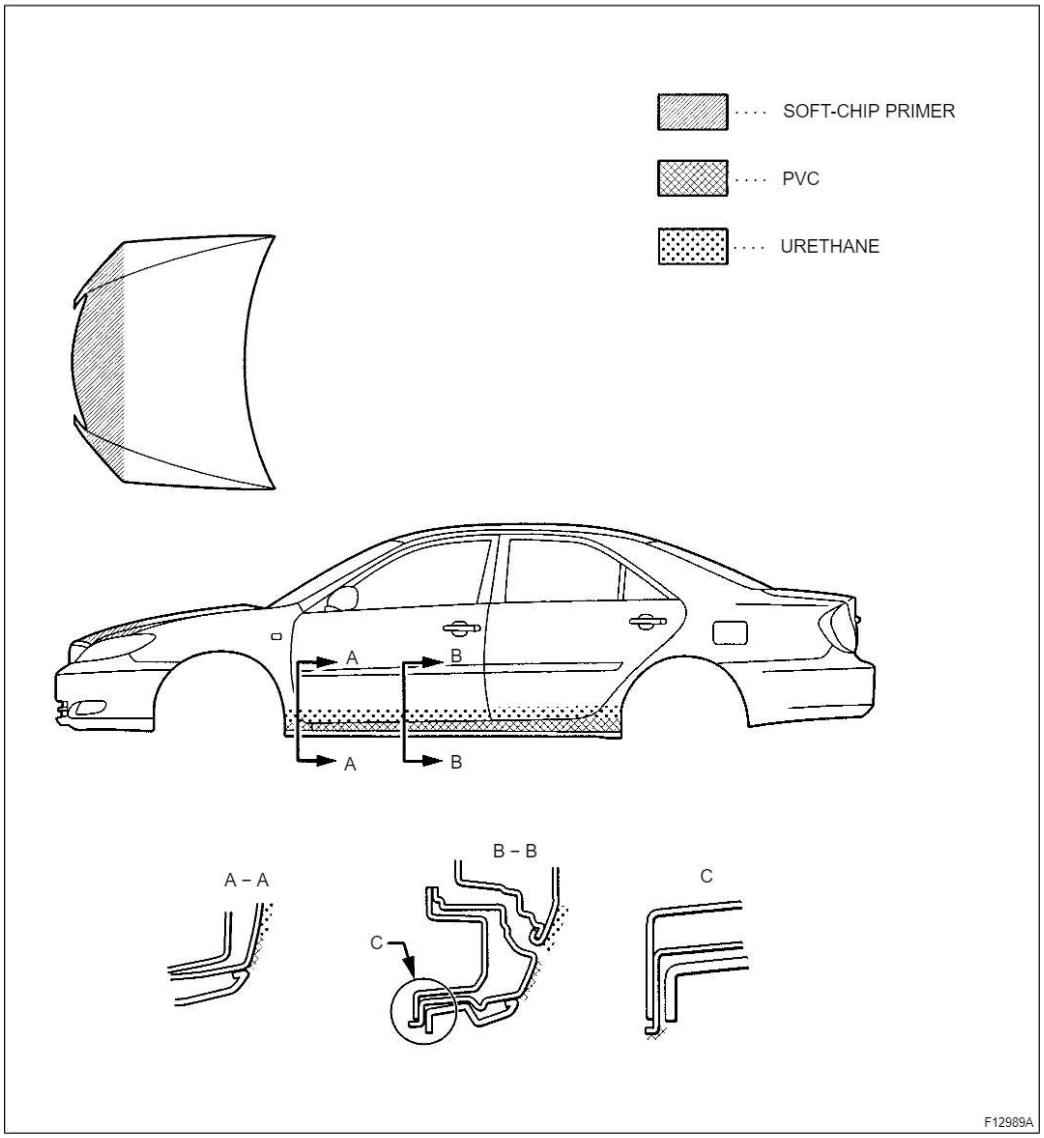
mm	in.
2.0	0.079
2.5	0.098
3.0	0.118
4.2	0.165

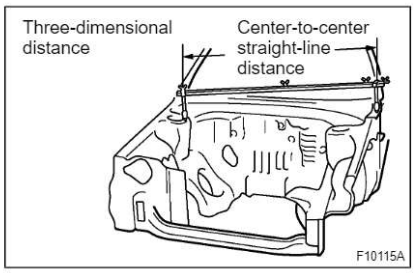
F17192

BODY PANEL ANTI-CHIPPING PAINT APPLICATION AREAS

HINT:

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





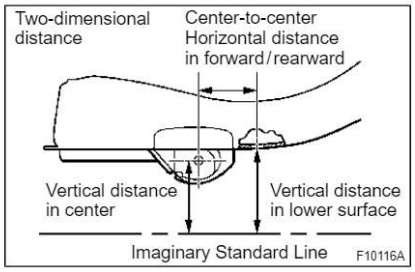
GENERAL INFORMATION

1. BASIC DIMENSIONS

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

(1) (Three-dimensional distance)

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

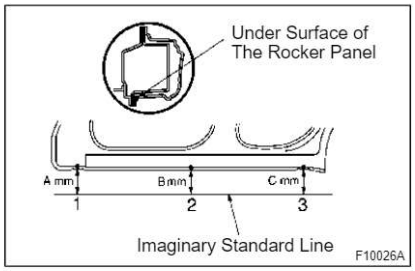


(2) (Two-dimensional distance)

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

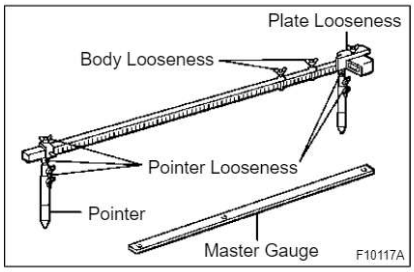
(b) In cases in which only one dimension is given, left and right are symmetrical.

(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.)

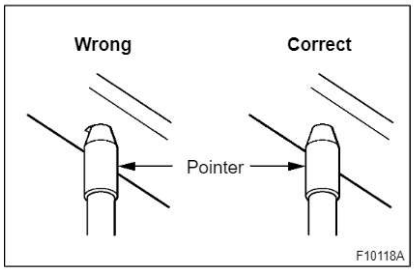
SYMBOL	Name
1	The place that was lowered A mm from the under surface of the rocker panel centered on the front jack up point.
2	The place that was lowered B mm from the under surface of the rocker panel centered between 1 and 3.
3	The place that was lowered C mm from the under surface of the rocker panel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

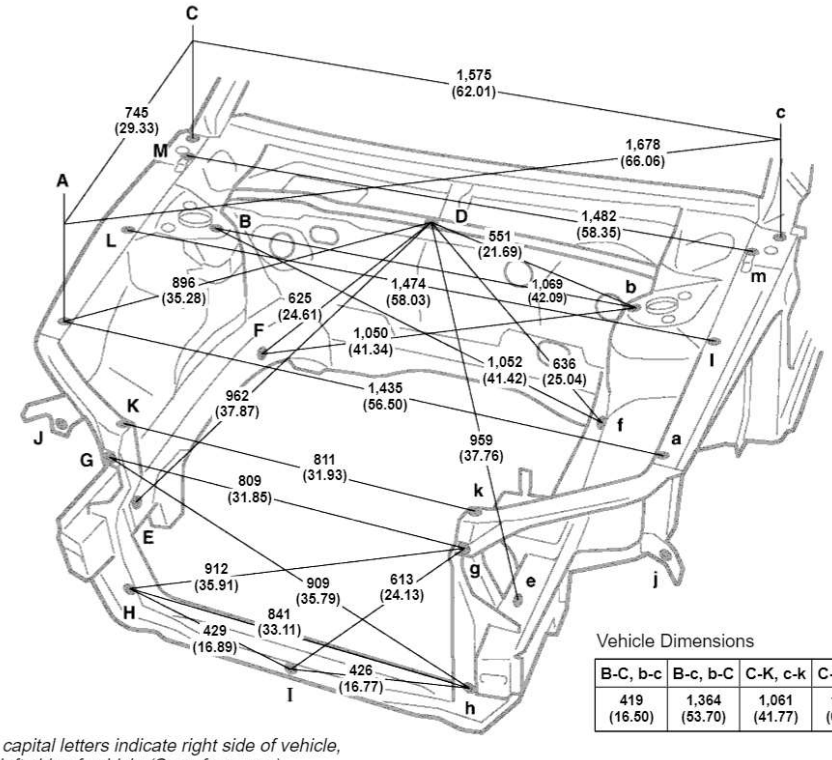
1. The height of the left and right points must be equal.
2. Always calibrate the tracking gauge before measuring or after adjusting the pointer height.
3. Take care not to drop the tracking gauge or otherwise shock it.
4. Confirm that the pointers are securely in the holes.

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

BODY DIMENSION DRAWINGS

ENGINE COMPARTMENT

(Three-Dimensional Distance)



Vehicle Dimensions

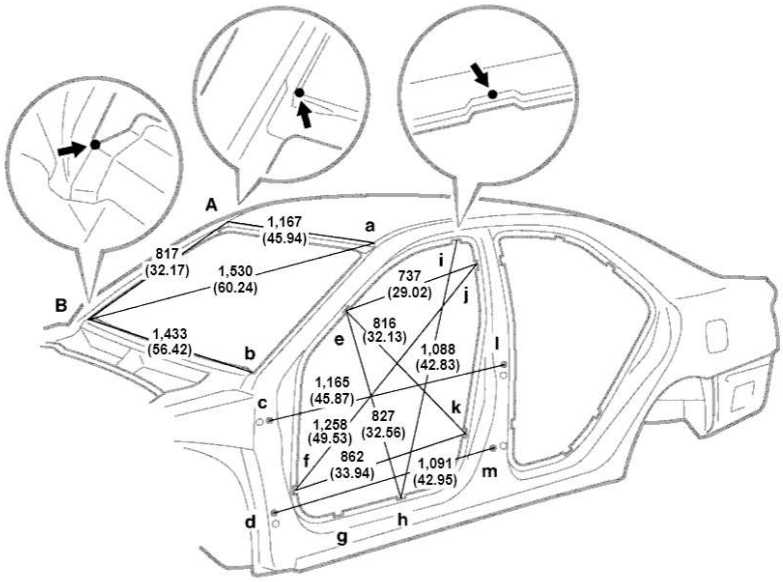
B-C, b-c	B-c, b-C	C-K, c-k	C-k, c-K	D-L, D-l	J-j
419 (16.50)	1,364 (53.70)	1,061 (41.77)	1,550 (61.02)	766 (30.16)	1,508 (59.37)

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

mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Front fender installation nut − front	6 (0.24) nut	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 − rear	8 (0.31) nut	J, j	Fender apron plate standard hole	10 (0.39)
D	Cowl top inner panel standard hole	7 (0.28)	K, k	Radiator upper support installation nut	6 (0.24) nut
E, e	Front side member standard hole	18 (0.71)	L, l	Front fender installation nut	6 (0.24) nut
F, f	Front side member standard hole	RH: 18 (0.71) LH: 13 (0.51)	M, m	Front fender installation nut	6 (0.24) nut
G, g	Radiator upper support installation nut	6 (0.24) nut	—	—	—

(Three-Dimensional Distance)



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

Vehicle Dimensions Left ↔ Right

E-e	F-f	G-g	H-h	I-i	J-j	K-k
1,395 (54.92)	1,492 (58.74)	1,492 (58.74)	1,492 (58.74)	1,182 (46.54)	1,302 (51.26)	1,492 (58.74)

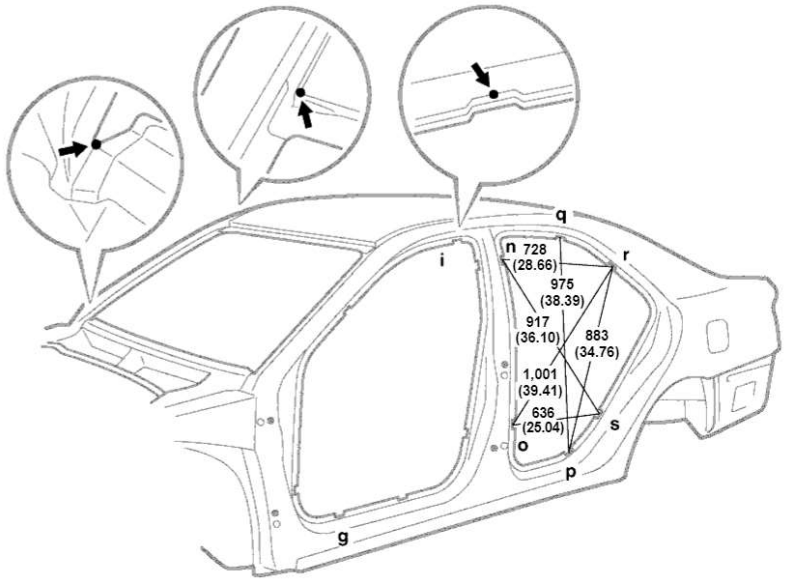
E-f or e-F	E-h or e-H	E-j or e-J	F-j or f-J	F-k or f-K	H-i or h-I	J-k or j-K
1,603 (63.11)	1,663 (65.47)	1,536 (60.47)	1,877 (73.90)	1,723 (67.83)	1,716 (67.56)	1,561 (61.46)

mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Roof panel corner	—	H, h	Rocker panel assembly mark	—
B, b	Cowl top inner panel / Front body pillar adjoining portion	—	I, i	Roof side rail assembly mark	—
C, c	Front door hinge installation nut − rear	8 (0.31) nut	J, j	Center body pillar assembly mark	—
D, d	Front door hinge installation nut − upper	8 (0.31) nut	K, k	Center body pillar assembly mark	—
E, e	Front body pillar assembly mark	—	L, l	Rear door hinge installation hole − upper	13 (0.51)
F, f	Front body pillar assembly mark	—	M, m	Rear door hinge installation hole − front	13 (0.51)
G, g	Rocker panel assembly mark	—	—	—	—

BODY OPENING AREAS (Side View-Rear)

(Three-Dimensional Distance)



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

Vehicle Dimensions Left ↔ Right

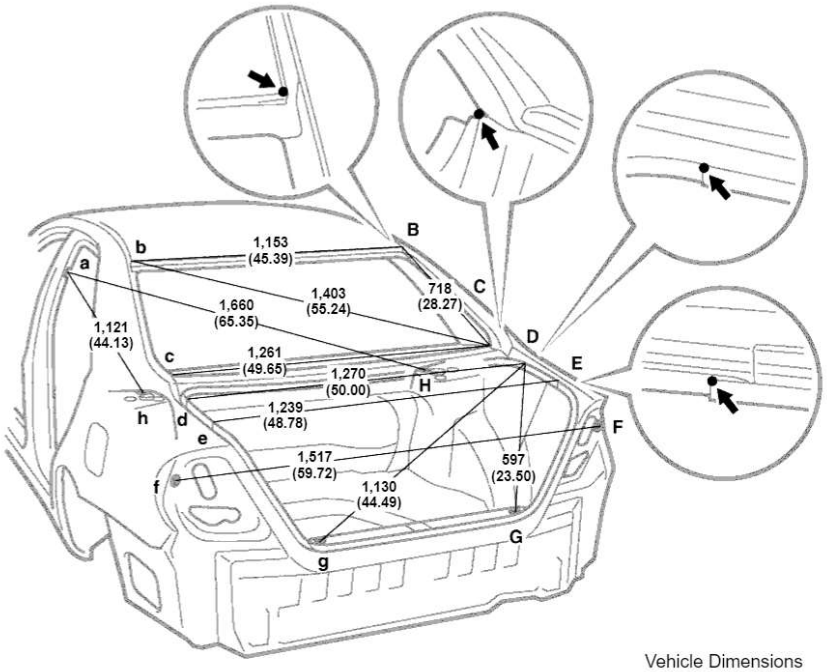
N-n	O-o	P-p	Q-q	R-r	S-s
1,319 (51.93)	1,491 (58.70)	1,492 (58.74)	1,190 (46.85)	1,344 (52.91)	1,493 (58.78)

G-p or g-P	I-q or i-Q	N-r or n-R	N-s or n-S	O-s or o-S	P-q or p-Q	R-s or r-S
1,965 (77.36)	1,334 (52.52)	1,517 (59.72)	1,676 (65.98)	1,622 (63.86)	1,651 (65.00)	1,572 (61.89)

mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
G, g	Rocker panel assembly mark	—	P, p	Rocker panel assembly mark	—
I, i	Roof side rail assembly mark	—	Q, q	Roof side rail assembly mark	—
N, n	Center body pillar assembly mark	—	R, r	Quarter panel assembly mark	—
O, o	Center body pillar assembly mark	—	S, s	Quarter panel assembly mark	—

(Three-Dimensional Distance)



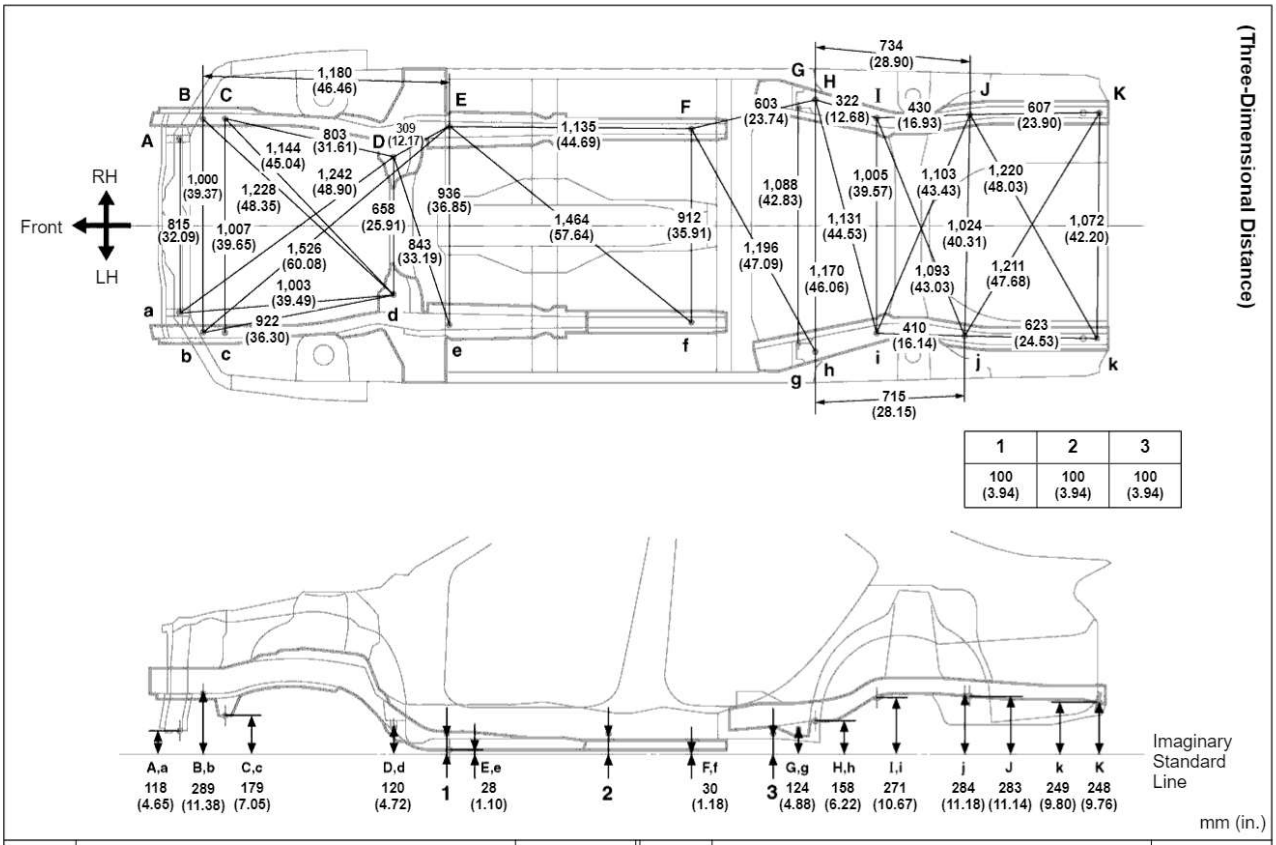
Vehicle Dimensions

H-h
1,137 (44.76)

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

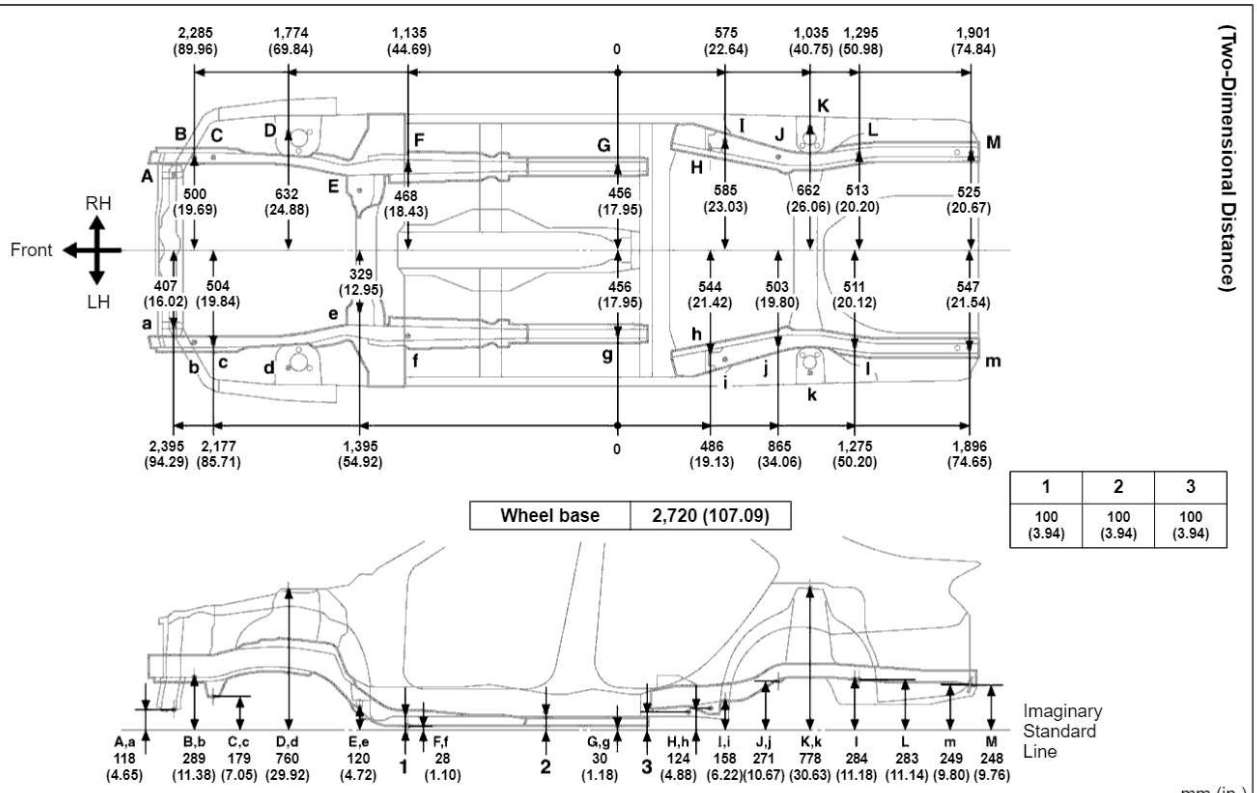
mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Center body pillar assembly mark	—	E, e	Luggage opening trough / Quarter panel adjoining portion	—
B, b	Roof panel corner	—	F, f	Quarter panel standard hole	10 (0.39)
C, c	Upper back reinforcement / Quarter panel adjoining portion	—	G, g	Rear floor finish plate installation hole	8.5 (0.335)
D, d	Quarter panel / Upper back reinforcement adjoining portion	—	H, h	Rear spring support hole inner − front	9.5 (0.374)



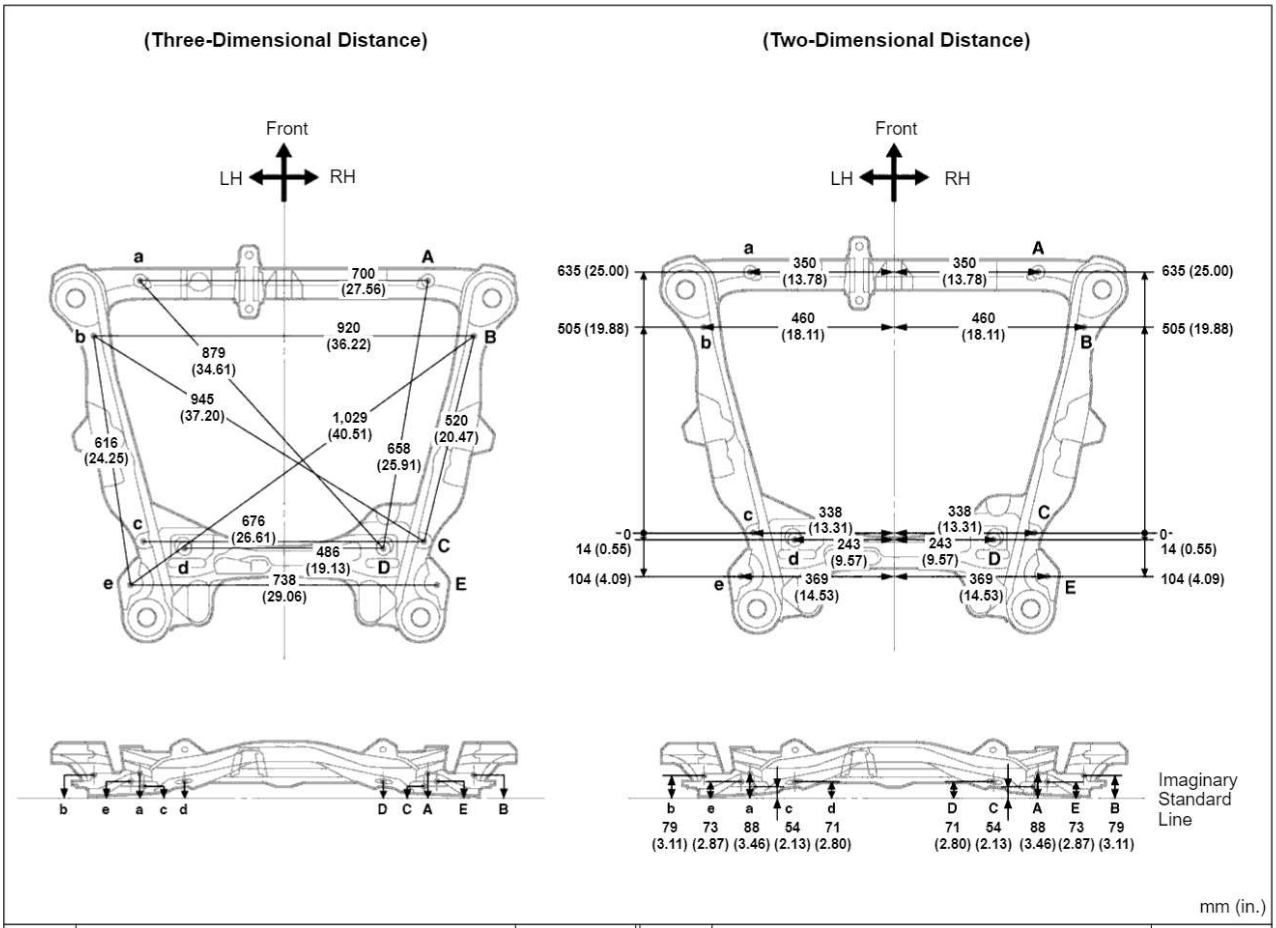
1	2	3
100 (3.94)	100 (3.94)	100 (3.94)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Front crossmember No.2 reinforcement standard hole	13 (0.51)	G, g	Strut bar installation hole	12 (0.47)
B, b	Front side member standard hole	18 (0.71)	H, h	Rear floor side member standad hole	18 (0.71)
C, c	Front suspension member installation nut	16 (0.63) nut	I, i	Rear suspension member installation nut	12 (0.47) nut
D, d	Front suspension member installation nut	16 (0.63) nut	J, j	Rear floor side member standard hole	18 (0.71)
E, e	Front side member standard hole	18 (0.71)	K, k	Transport hook installation nut - rear	10 (0.39) nut
F, f	Front floor under reinforcement standard hole	15 (0.59)	—	—	—



mm (in.)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Front crossmember No.2 reinforcement standard hole	13 (0.51)	H, h	Strut bar installation hole	12 (0.47)
B, b	Front side member standard hole	18 (0.71)	I, i	Rear floor side member standard hole	18 (0.71)
C, c	Front suspension member installation nut	16 (0.63) nut	J, j	Rear suspension member installation nut	12 (0.47) nut
D, d	Front spring support hole outer − front	12.5 (0.492)	K, k	Rear spring support hole − outer	9.5 (0.374)
E, e	Front suspension member installation nut	16 (0.63) nut	L, l	Rear floor side member standard hole	18 (0.71)
F, f	Front side member standard hole	18 (0.71)	M, m	Transport hook installation nut − rear	10 (0.39) nut
G, g	Front floor under reinforcement standard hole	15 (0.59)	—	—	—



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 - lower	15 (0.59)
C, c	Front frame standard hole	13 (0.51)	—	—	—