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**TOYOTA**

**REPAIR MANUAL FOR COLLISION DAMAGE**

**MR2**

**SW20 series**

**Dec., 1989**





## FOREWORD

This repair manual has been prepared to provide information on the repair methods (including cutting and welding operations, but excluding painting) for collision-damaged body components of the TOYOTA MR2.

Applicable models: SW20, 21 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 models are bolted on and require no welding.

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 MR2 refer to the following repair manuals.

Manual Name	Pub. No.
• MR2 Repair Manual (USA and CANADA)	M/Y Version
• MR2 Chassis and Body Repair Manual (Models except USA and CANADA)	RM 182E
• MR2 Electrical Wiring Diagrams Manual (USA and CANADA) (Models except USA and CANADA)	M/Y Version EWD 082Y
• Fundamental Painting Procedures	36438E
• Fundamental Body Repair Procedures	BRM002E

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**

# FOREWORD

This repair manual has been prepared to provide information on the repair methods (including cutting and welding operations, but excluding painting) for collision-damaged body components of the TOYOTA MR2.

Applicable models: 8W50, 51 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 first edition of the TOYOTA models are based on and require no welding.

Body construction will sometimes differ depending on specification 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 MR2 refer to the following repair manuals:

Pub. No.	Manual Name
MY Version	<ul style="list-style-type: none"> <li>MR2 Repair Manual (USA and CANADA)</li> <li>MR2 Chassis and Body Repair Manual (Models except USA and CANADA)</li> <li>MR2 Electrical Wiring Diagrams Manual (USA and CANADA)</li> </ul>
RM 182E	<ul style="list-style-type: none"> <li>MR2 Chassis and Body Repair Manual (Models except USA and CANADA)</li> <li>MR2 Electrical Wiring Diagrams Manual (USA and CANADA)</li> </ul>
MY Version	<ul style="list-style-type: none"> <li>MR2 Chassis and Body Repair Manual (Models except USA and CANADA)</li> <li>MR2 Electrical Wiring Diagrams Manual (USA and CANADA)</li> </ul>
MYD 003Y	<ul style="list-style-type: none"> <li>MR2 Chassis and Body Repair Manual (Models except USA and CANADA)</li> <li>MR2 Electrical Wiring Diagrams Manual (USA and CANADA)</li> </ul>
80488E	<ul style="list-style-type: none"> <li>MR2 Chassis and Body Repair Manual (Models except USA and CANADA)</li> <li>MR2 Electrical Wiring Diagrams Manual (USA and CANADA)</li> </ul>
8RM002E	<ul style="list-style-type: none"> <li>MR2 Chassis and Body Repair Manual (Models except USA and CANADA)</li> <li>MR2 Electrical Wiring Diagrams Manual (USA and CANADA)</li> </ul>

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TOYOTA MOTOR CORPORATION



# TOYOTA MR2 REPAIR MANUAL FOR COLLISION DAMAGE

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BODY PANEL REPLACEMENT	RE
BODY PANEL CONSTRUCTION	CN
PLASTIC BODY PARTS	PP
ANTI-RUST TREATMENT	AR
BODY DIMENSIONS	DI
APPENDIX	AP

# TOYOTA MRS REPAIR MANUAL FOR COLLISION DAMAGE

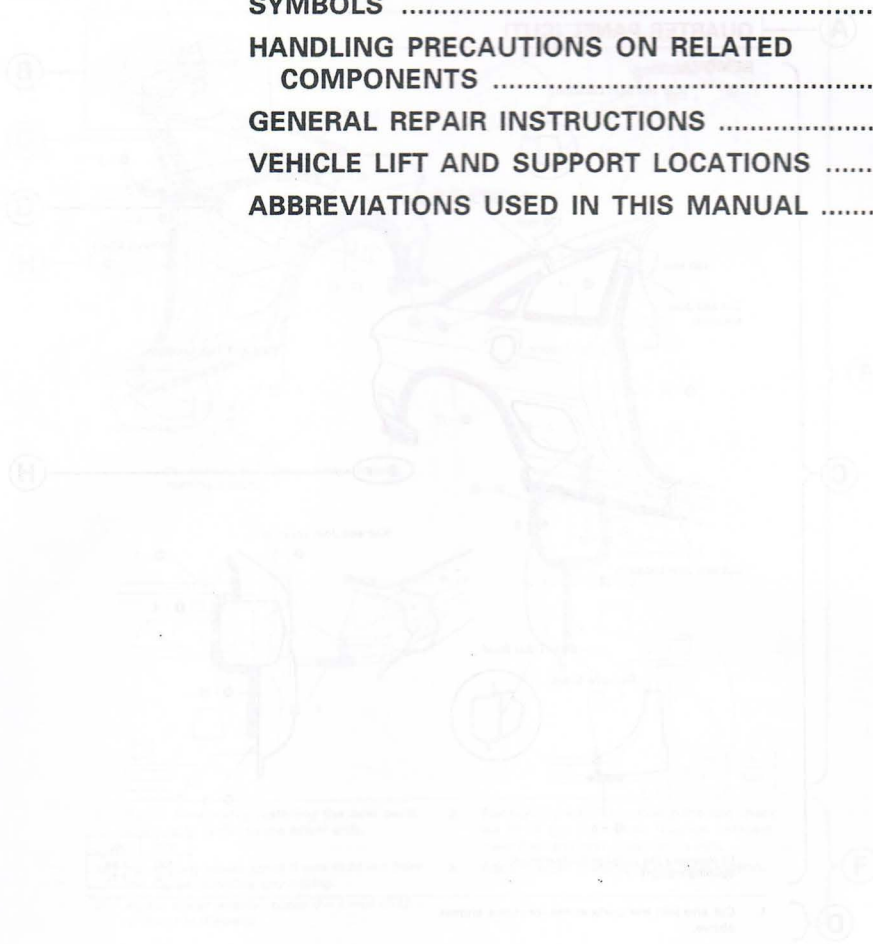
IN	INTRODUCTION
RE	BODY PANEL REPLACEMENT
CM	BODY PANEL CONSTRUCTION
PP	PLASTIC BODY PARTS
AR	ANTI-RUST TREATMENT
DI	BODY DIMENSIONS
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# INTRODUCTION

<b>HOW TO USE THIS MANUAL .....</b>	<b>IN-2</b>
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**IN**



A : REPLACEMENT PARTS AND METHOD

B : QUARTER PANEL (CUT)

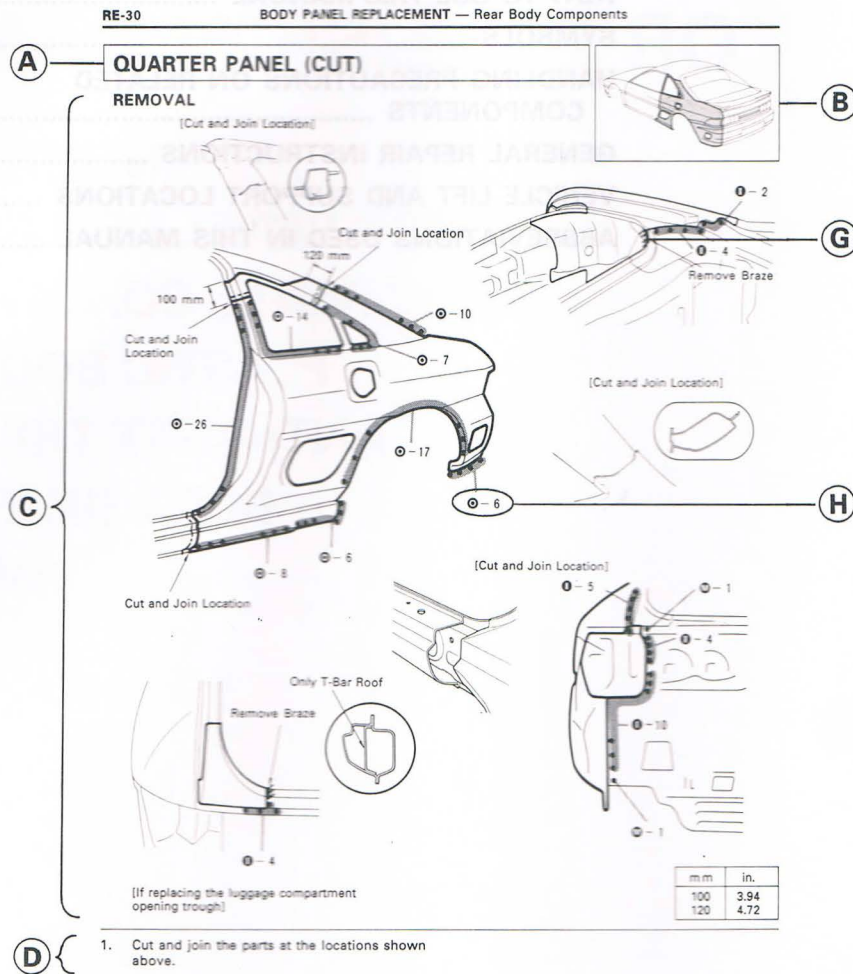
C : PARTS LOCATION

D : REMOVAL DIAGRAM

E : REMOVAL GUIDE

# HOW TO USE THIS MANUAL

Each repair method description provided in Section RE of this manual comprises two pages, divided into 2 blocks (REMOVAL AND INSTALLATION) and includes illustrations to facilitate body repair.



**A : REPLACEMENT PARTS AND METHOD**

**QUARTER PANEL (CUT)**

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

**B : PARTS LOCATION**

**C : REMOVAL DIAGRAM**

Describes in detail removal of the damaged parts involving repair by cutting.

**D : REMOVAL GUIDE**

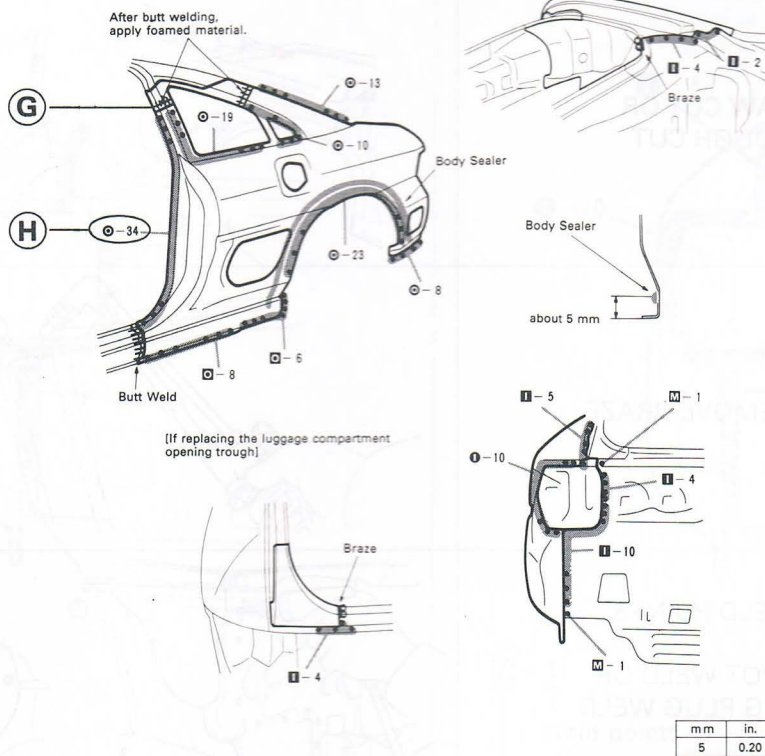
Provides additional information to more efficiently help you perform the removal.



BODY PANEL REPLACEMENT — Rear Body Components

RE-31

INSTALLATION



1. Before temporarily installing the new parts, apply body sealer to the wheel arch.
  2. Temporarily install the new parts and check the fit of the front door, luggage compartment door and rear combination light.
  3. Apply foamed material to the pillar section.
- HINT:**
- 1) Apply body sealer about 5 mm (0.20 in.) from the flange, avoiding any coozing.
  - 2) Apply sealer evenly, about 3 - 4 mm (0.12 - 0.16 in.) in diameter.

**E** : INSTALLATION DIAGRAM

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

**F** : INSTALLATION GUIDE

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

**G** : SYMBOLS


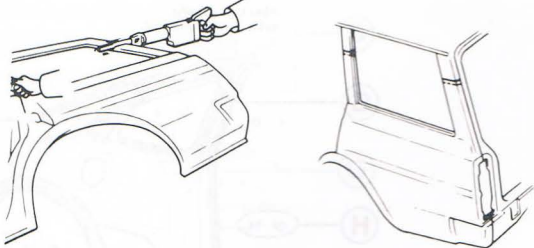

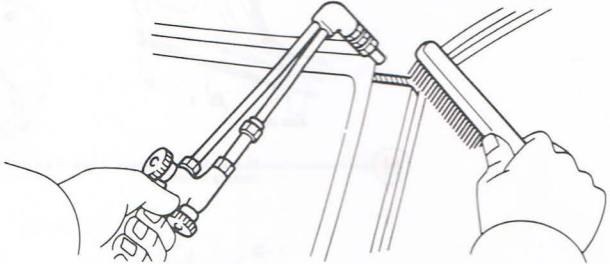

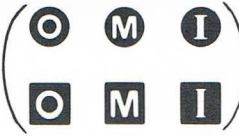
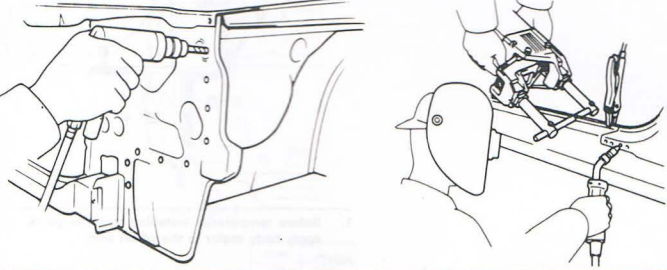

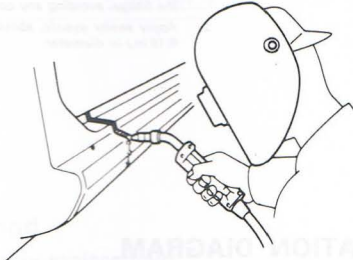

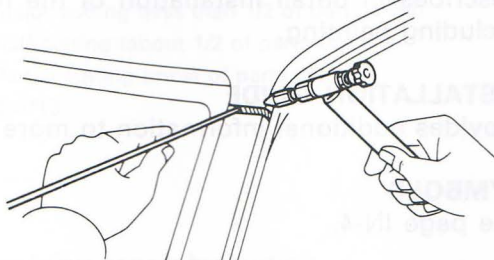

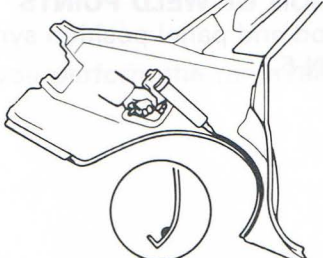
See page IN-4.

**H** : ILLUSTRATION OF WELD POINTS

Weld method and panel position symbols.  
See page IN-5.

# SYMBOLS

The following symbols are used in the Welding Diagrams in Section RE of this manual to indicate cutting areas and the types of weld required.

SYMBOLS	MEANING	ILLUSTRATION
	<p>SAW CUT OR ROUGH CUT</p>	
	<p>REMOVE BRAZE</p>	
 	<p>WELD POINTS SPOT WELD OR MIG PLUG WELD (See page IN-5)</p>	
	<p>CONTINUOUS MIG WELD (BUTT WELD OR TACK WELD)</p>	
	<p>BRAZE</p>	
	<p>BODY SEALER</p>	



# Illustration of Weld Point Symbols

## EXAMPLE:

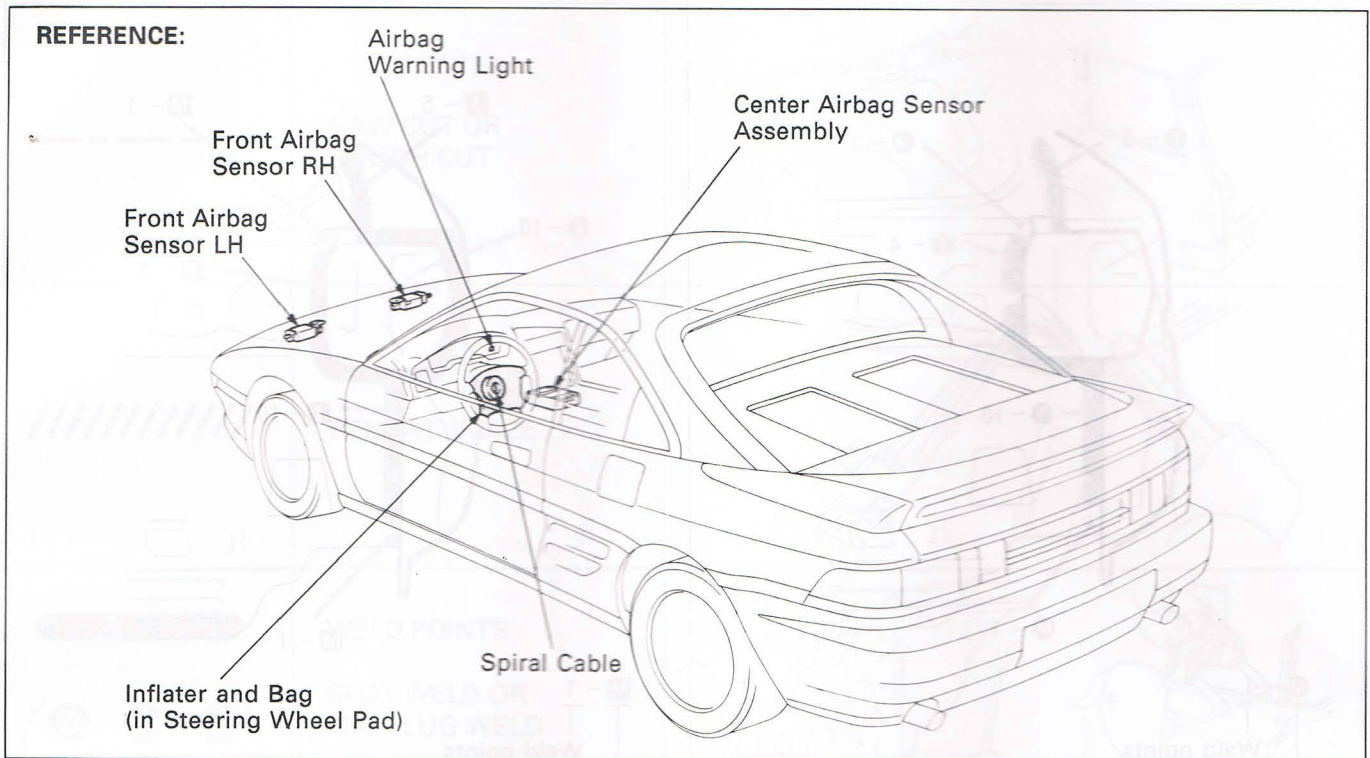
REMOVAL	INSTALLATION

SYMBOL	MEANING	ILLUSTRATION	SYMBOL	MEANING	ILLUSTRATION
○ M I	Remove Weld Points		○ M I	Spot Weld	
○	(Outside)		○ M I	Mig Plug Weld	
M	(Middle)		M I		
I	(Inside)		+	Spot MIG Weld	
<p><i>HINT: Panel position symbols are as seen from the working posture.</i></p>					

## HANDLING PRECAUTIONS ON RELATED COMPONENTS

### 1. SRS AIRBAG

#### Locations of Airbag Components



Servicing vehicle with an SRS AIRBAG (referred to as the airbag in the remainder of this manual) installed.

When handling airbag components (removal, installation or inspection, etc.), always follow the directions given in the repair manual for the relevant model to prevent the occurrence of accidents and airbag malfunction.

Also take the following precautions when repairing the body:

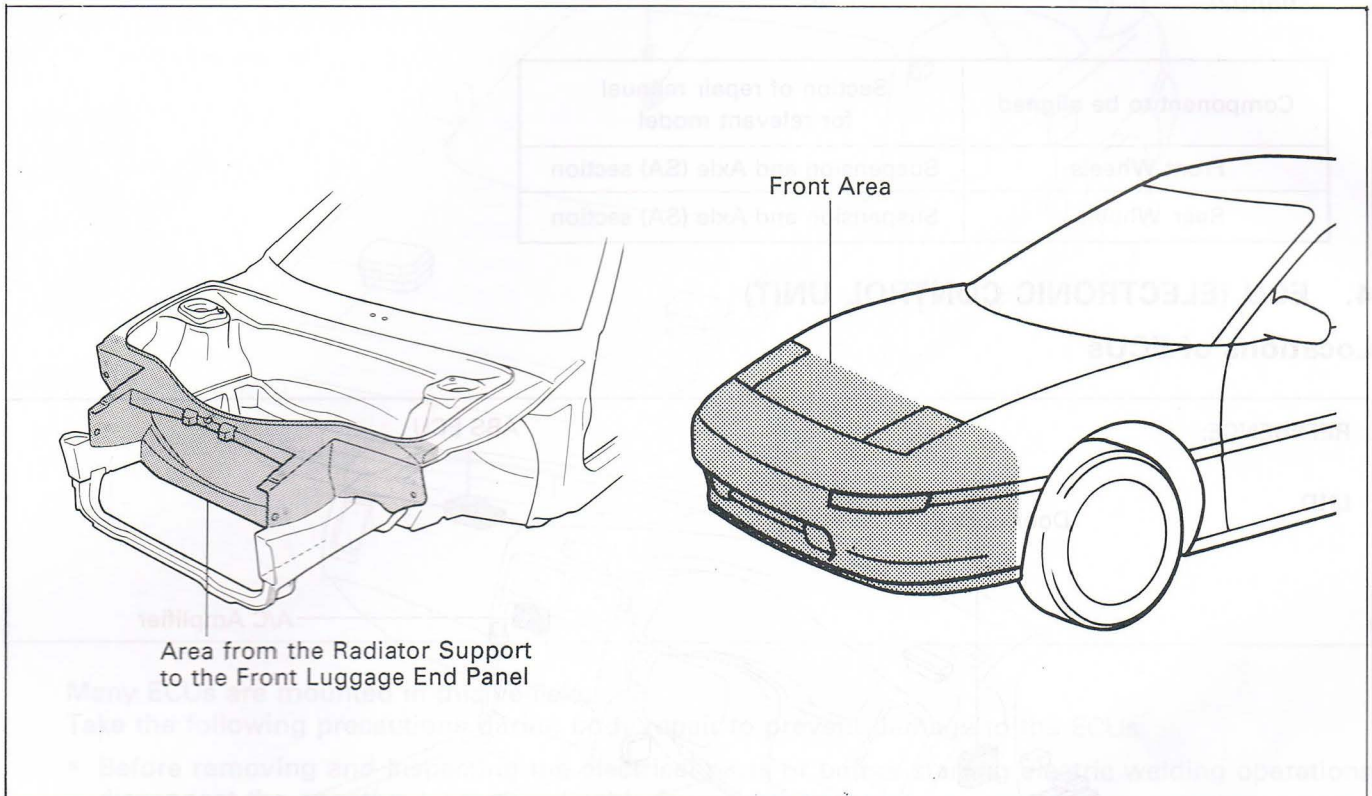
- Work must be started after 20 seconds or longer from the time the ignition switch is set to the LOCK position and the negative (-) terminal cable is disconnected from the battery. (The airbag system is equipped with a back-up power source so that if work is started within 20 seconds of disconnecting the negative (-) terminal cable of the battery, the airbag may be deployed.)
- When using electric welding, first disconnect the airbag connector (yellow color and 2 pins) under the steering column near the combination switch connector before starting work.
- Before repairing the body, remove the airbag sensors if, during repair, shocks are likely to be applied to the sensors due to vibrations of the body or direct tapping with tools or other parts.
- Do not expose the airbag sensors or the steering wheel pad directly to hot air or flames.

**NOTICE:**

- 1) The maximum ambient temperature tolerance is 120°C (248°F) for the front airbag sensor, 105°C (221°F) for the center airbag sensor assembly and 93°C (200°F) for the steering wheel pad. If it is possible that the ambient temperature may reach or exceed the temperature limit, remove the sensors and the steering wheel pad from the vehicle or protect them with a hot insulation material before starting work.
- 2) Prior to welding, remove adjacent airbag sensors or the steering wheel pad from the vehicle or protect them with fire-proof covers.



- If the front fender or periphery of the vehicle is damaged, visually inspect for damage to the front airbag sensor using the inspection procedures described in section AB of the repair manual for the relevant model.  
Also check that the dimensions of the body where the front airbag sensor is installed match those in the body dimension drawings.  
(The airbag may malfunction, or may not work, if the mounting angle or dimensions of the sensor mount are not correct.)



- If the vehicle is damaged, visually inspect for damage to the steering wheel pad using the inspection procedures described in section AB of the repair manual for the relevant model year.
- When removing the steering wheel pad or handling a new steering wheel pad, keep the pad upper surface facing upward. Also, lock the lock lever of the twin lock type connector at the rear of the pad and take care not to damage the connector.  
(Storing the pad with its metallic surface up may lead to a serious accident if the airbag inflates for some reason.)
- Store the steering wheel pad where the ambient temperature remains below 93°C (200°F), without high humidity and away from electrical noise.
- Be careful not to let painting materials contact the airbag sensors.
- Information labels are attached to the periphery of the airbag components. Follow the NOTICES.

## 2. 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.

### 3. DRIVE TRAIN AND CHASSIS

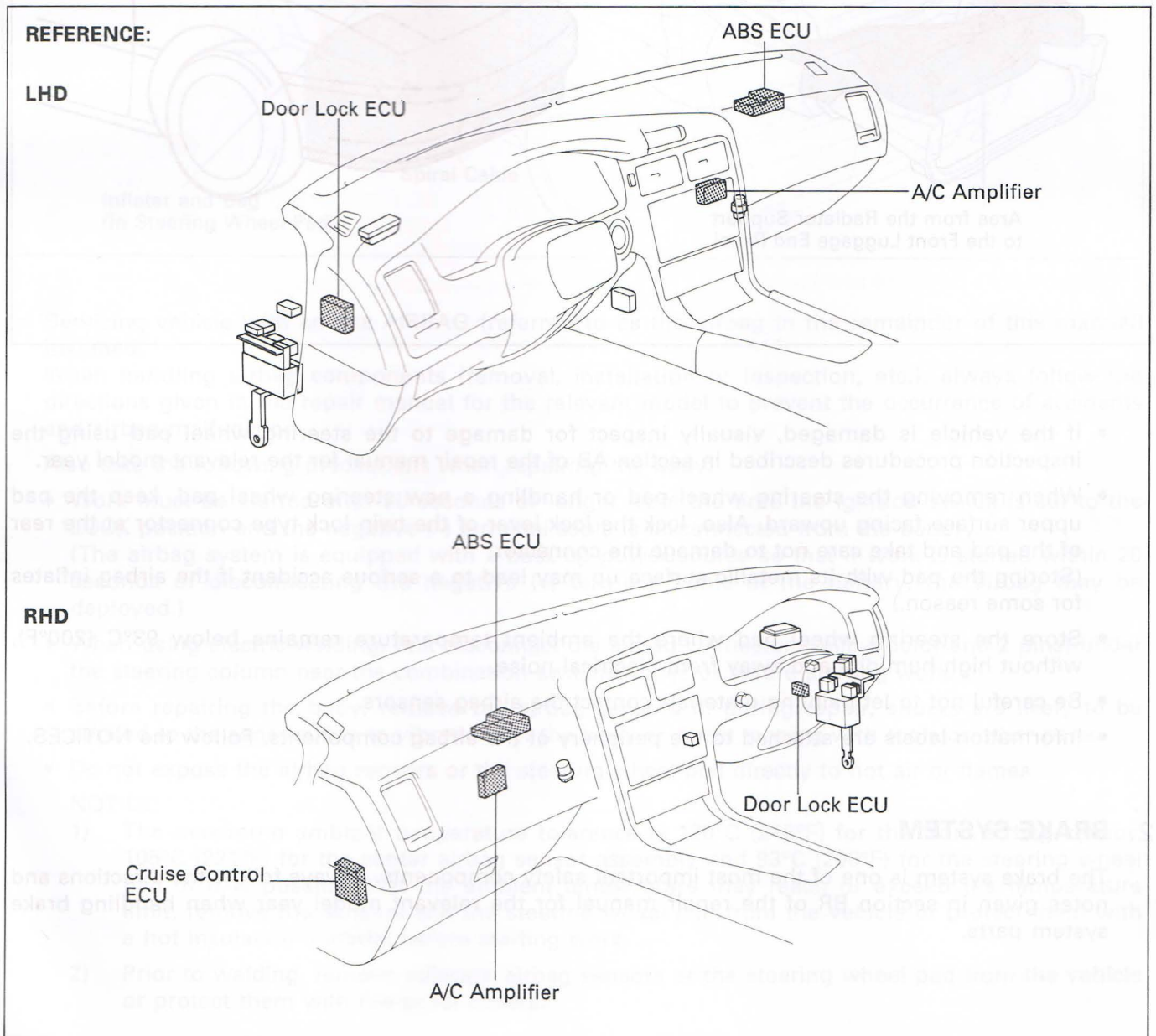
The drive train and chassis are components that can have great effects on the running performance and vibration resistance of the vehicle. After installing components in the sections listed in the table below, perform alignments to ensure correct mounting angles and dimensions. Particularly accurate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

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

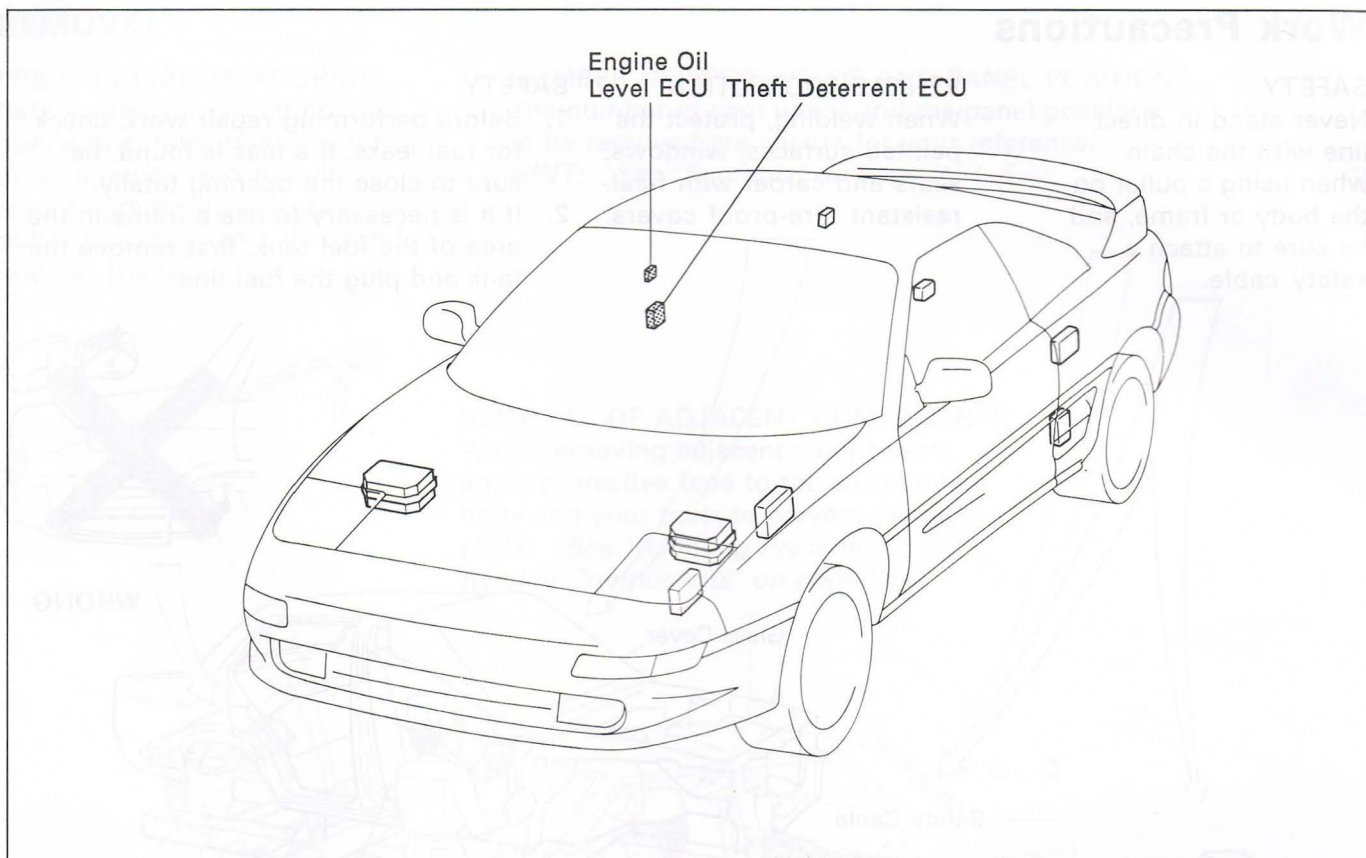
Component to be aligned	Section of repair manual for relevant model
Front Wheels	Suspension and Axle (SA) section
Rear Wheels	Suspension and Axle (SA) section

### 4. ECU (ELECTRONIC CONTROL UNIT)

#### Locations of ECUs





**Locations of ECUs (Cont'd)**

Many ECUs are mounted in this vehicle.

Take the following precautions during body repair to prevent damage to the ECUs.

- Before removing and inspecting the electrical parts or before starting electric welding operations, disconnect the negative (-) terminal cable from the battery.
- 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.

**5. 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 adjacent 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, hoses, etc. on the reverse side.



# GENERAL REPAIR INSTRUCTIONS

## Work Precautions

### SAFETY

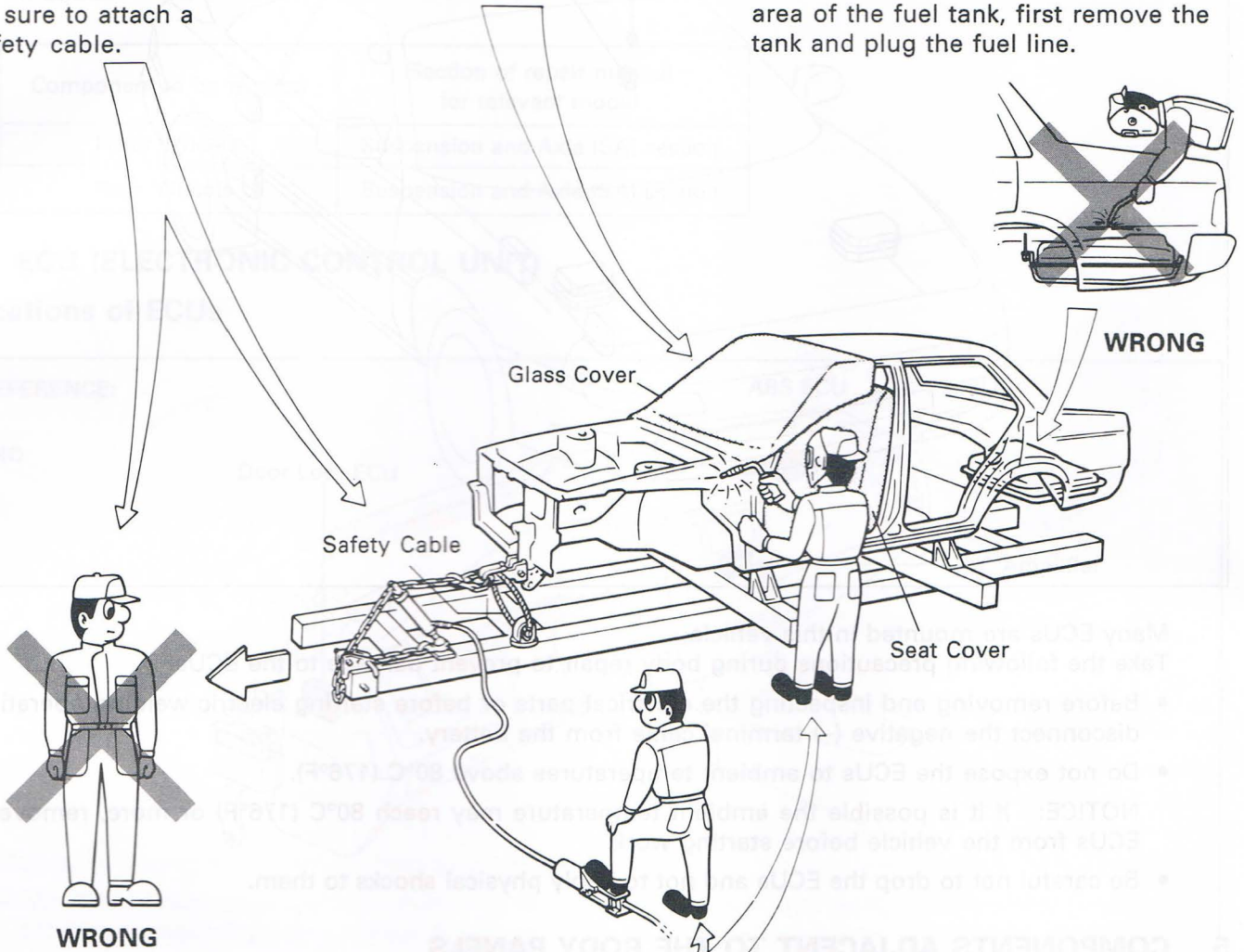
Never stand in direct line with the chain when using a puller on the body or frame, and be sure to attach a safety cable.

### VEHICLE PROTECTION

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

### SAFETY

1. Before performing repair work, check for fuel leaks. If a leak is found, be sure to close the opening totally.
2. If it is necessary to use a frame in the area of the fuel tank, first remove the tank and plug the fuel line.



### SAFETY WORK CLOTHES

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.

### HAND TOOLS

Keeping your hand tools in neat order improve your work efficiency.

Dust-Prevention Mask



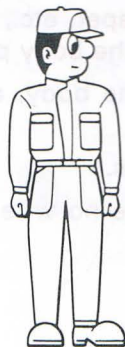
Face Protector



Eye Protector



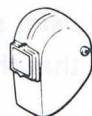
Safety Shoes



Welder's Glasses



Ear Plugs



Head Protector



Welder's Gloves



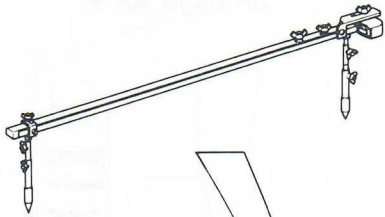
Body Mechanic Stand

# Proper and Efficient Work Procedures

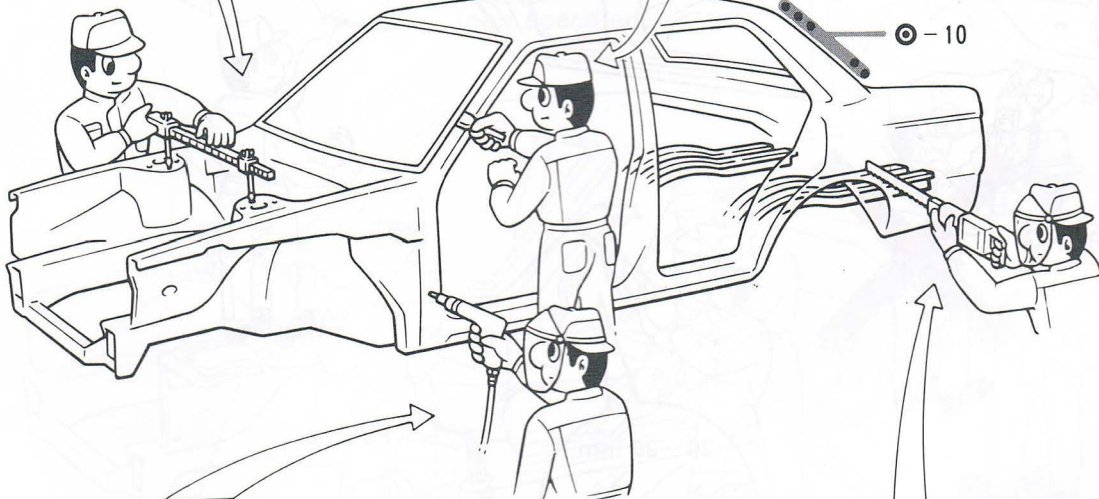
## REMOVAL

**PRE-REMOVAL MEASURING**  
 Before removal or cutting operations, take measurements in accordance with the dimension diagram. Always use a puller to straighten a damaged body or frame.

**NUMBER OF SPOT WELDS AND PANEL POSITIONS**  
 The number of spot welds and the panel positions to be removed are shown for your reference.  
*HINT: See "Symbols" on page IN-4, 5.*

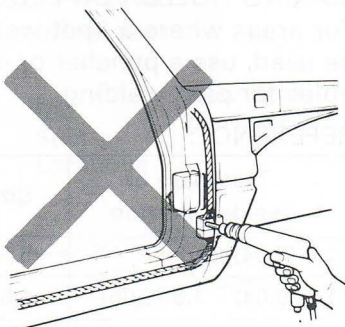


**REMOVAL OF ADJACENT COMPONENTS**  
 When removing adjacent components, apply protective tape to the surrounding body and your tools to prevent damage.  
*HINT: See "Handling Precautions on Related Components" on page IN-9.*

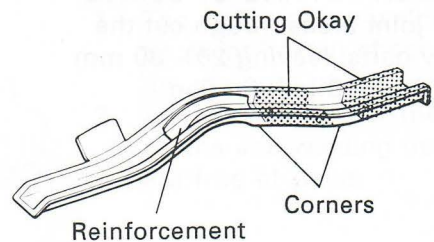


**PRECAUTIONS FOR DRILLING OR CUTTING**  
 Check behind any area to be drilled or cut to insure that there are no hoses, wires, etc., that may be damaged.  
*HINT: See "Handling Precautions on Related Components" on page IN-9.*

**CUTTING AREA**  
 Always cut in a straight line and avoid reinforced area.



**WRONG**



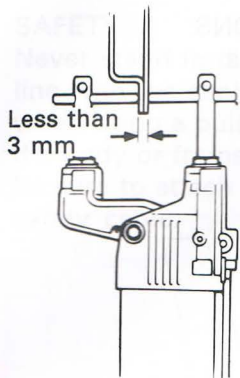
Reinforcement

Corners



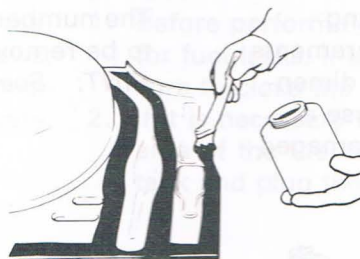
**PREPARATION FOR INSTALLATION**

**SPOT WELD POINTS**

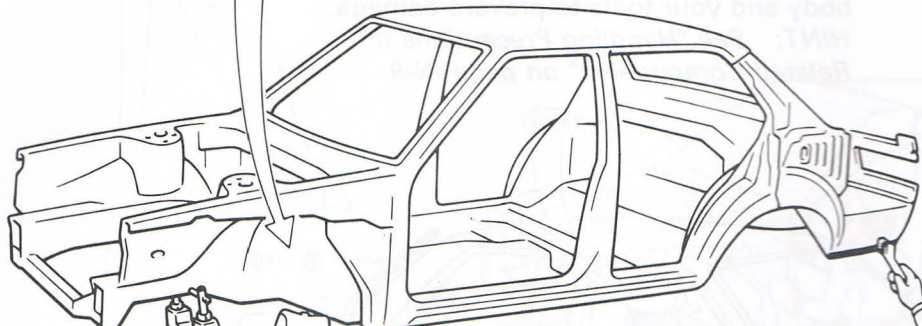


When welding panels with a combined thickness of over 3 mm (0.12 in.), use a MIG (Metal Inert Gas) welder for plug welding. *HINT: Spot welding will not provide sufficient durability for panels over 3 mm (0.12 in.) thick.*

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



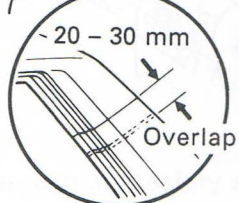
Remove the paint from the portion of the new parts and body to be welded, and apply weld-through primer. *HINT: See "ANTI-RUST TREATMENT" on page AR-9.*



**WRONG**



Air Saw



Puncher



**ROUGH CUTTING OF JOINTS**  
For joint areas, rough cut the new parts, leaving 20 – 30 mm (0.79 – 1.18 in.) overlap.

**MAKING HOLES FOR PLUG WELDING**  
For areas where a spot welder cannot be used, use a puncher or drill to make holes for plug welding.

REFERENCE: mm (in.)

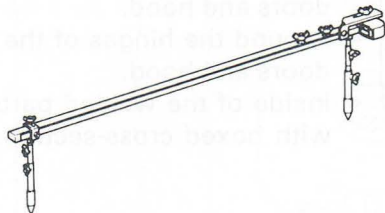
Thickness of welded portion	Size of plug hole
1.0 (0.04) under	5 (0.20) $\phi$ over
1.0 (0.04) – 1.5 (0.06)	6.5 (0.26) $\phi$ over
1.5 (0.06) over	8 (0.31) $\phi$ over



### INSTALLATION

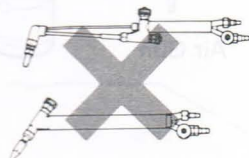
#### PRE-WELDING MEASUREMENTS

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



#### WELDING PRECAUTIONS

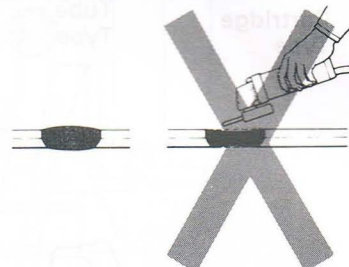
1. The number of welding spots should be as follows.  
Spot weld: 1.3 x No. of manufacturer's spots.  
Plug weld: More than No. of manufacturer's plugs.



WRONG

#### POST-WELDING REFINISHING

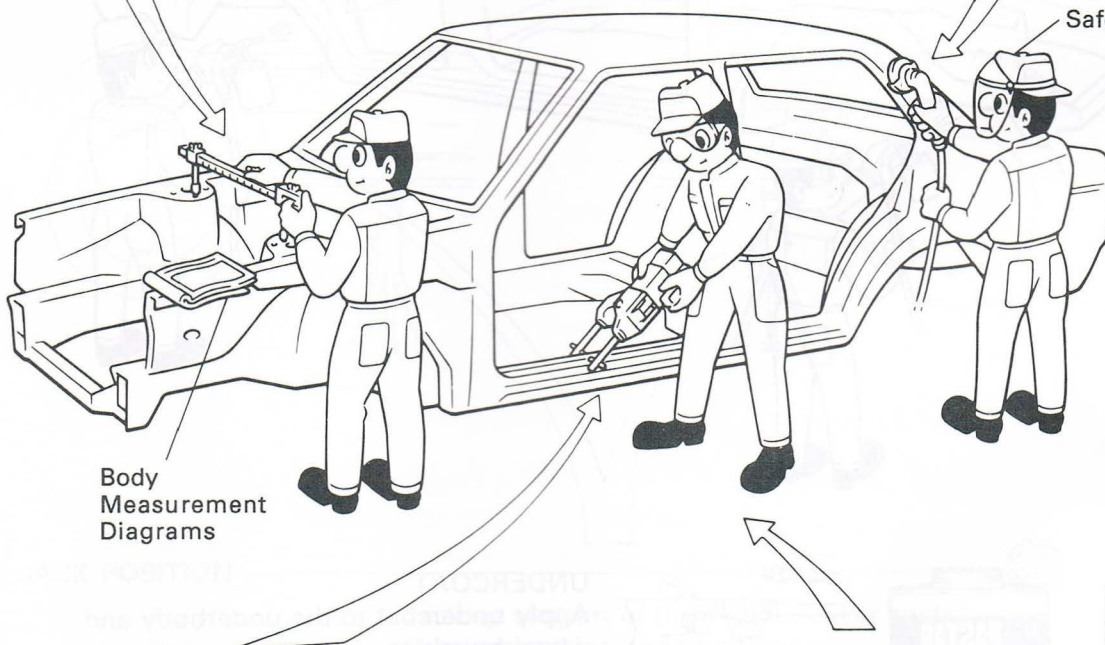
1. Always check the welded spots to insure they are secure.
2. When smoothing out the weld spots with a disc grinder, be careful not to grind off too much as this would weaken the weld.



OKAY

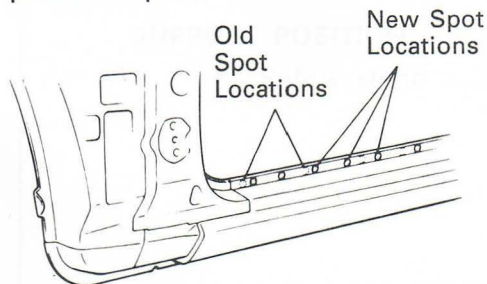
WRONG

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.



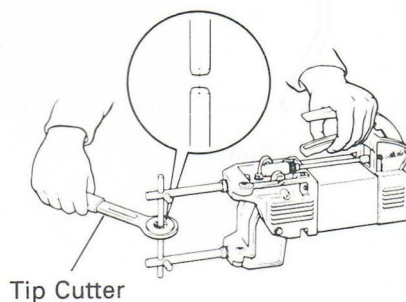
#### SPOT WELD LOCATIONS

Try to avoid welding over previous spots.



#### 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.



### ANTI-RUST TREATMENT

When replacing body panels, always apply body sealer, anti-rust agent or undercoat according to the requirements of your country.

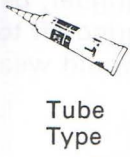
*HINT: For further details, see the description given in Section AR of this manual.*

#### BODY SEALER

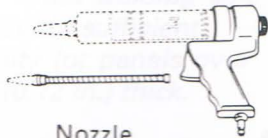
Apply body sealer to the required areas.



Cartridge Type



Tube Type



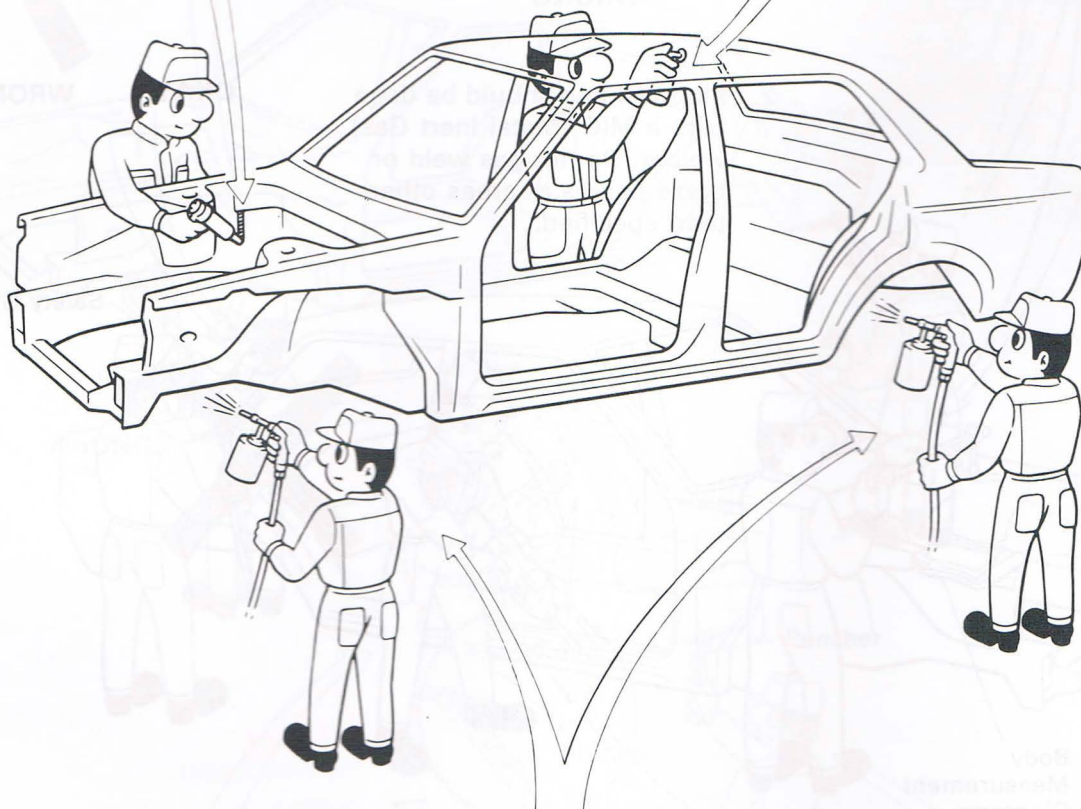
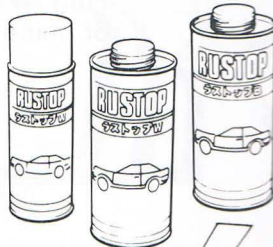
Nozzle

Air Gun

#### ANTI-RUST AGENT (WAX)

Apply anti-rust agent to following sections.

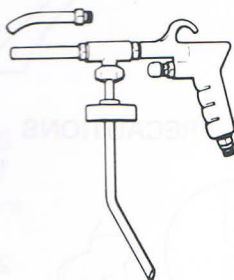
- Inside of the hems of the doors and hood.
- Around the hinges of the doors and hood.
- Inside of the welded parts with boxed cross-section.



Undercoating (Oil base)



Undercoating (Water base)



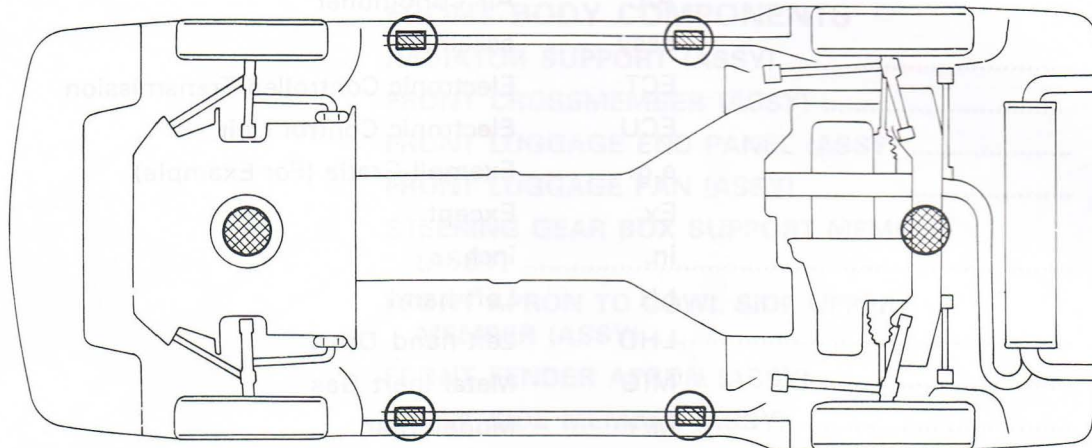
Spray Gun

#### UNDERCOAT

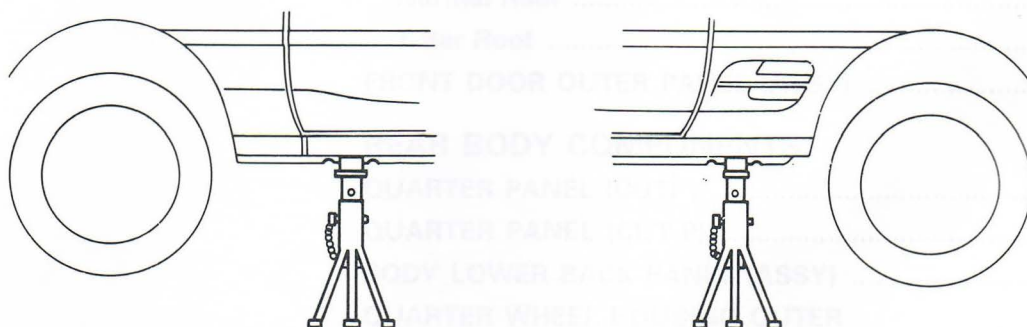
Apply undercoat to the underbody and wheel housings.



# VEHICLE LIFT AND SUPPORT LOCATIONS



Front ←



**JACK POSITION** \_\_\_\_\_

- Front ..... Jack up support of front under cover center
- Rear ..... Rear suspension crossmember



**PANTOGRAPH JACK POSITION** \_\_\_\_\_



**SUPPORT POSITION**

- Safety stand .....





## ABBREVIATIONS USED IN THIS MANUAL

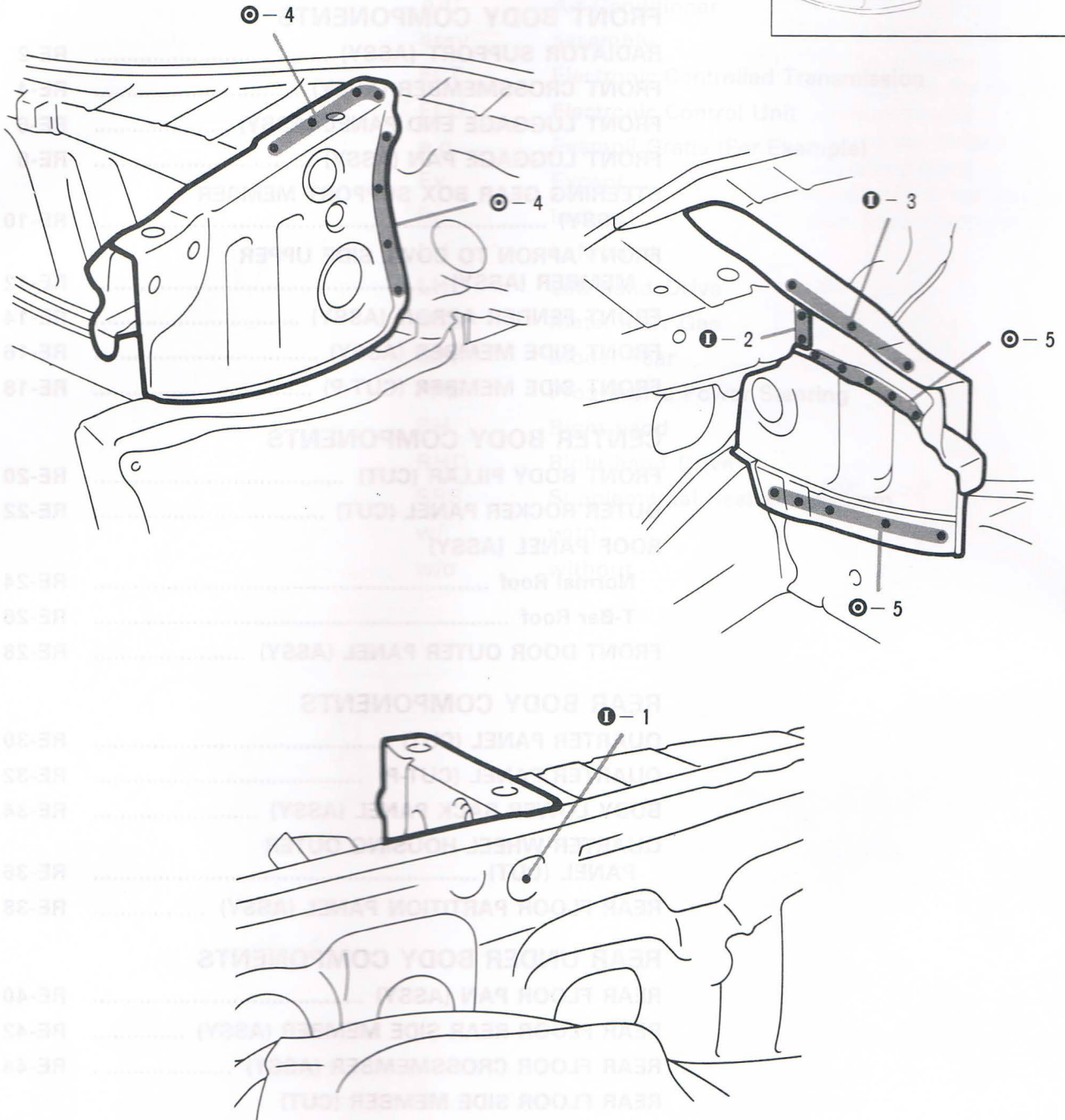
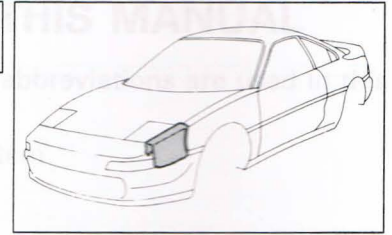
For convenience, the following abbreviations are used in this manual.

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
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
w/	with
w/o	without

# BODY PANEL REPLACEMENT

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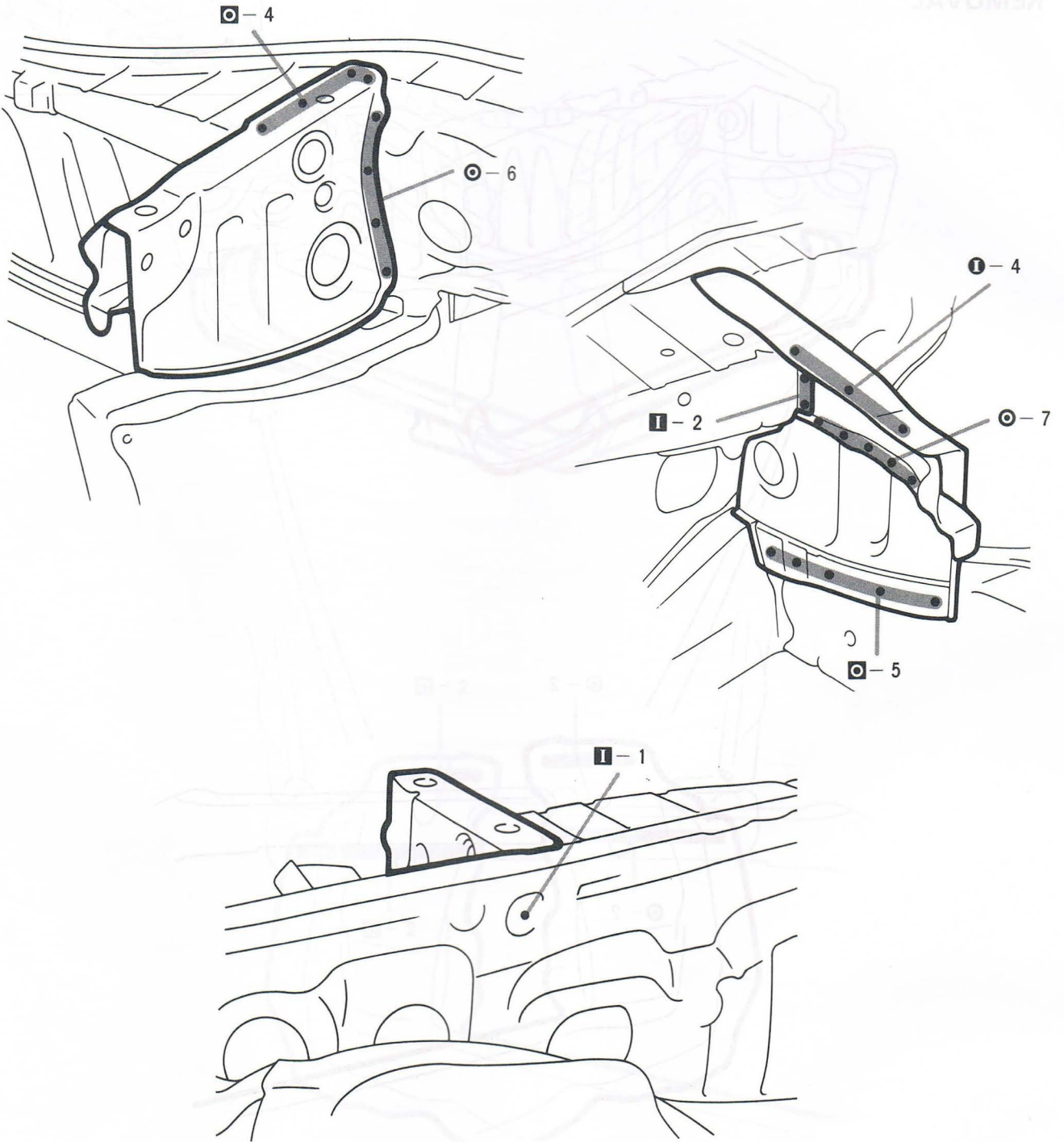
RE

**RADIATOR SUPPORT (ASSY)****REMOVAL**

1. Change radiator support reinforcement at the same time.



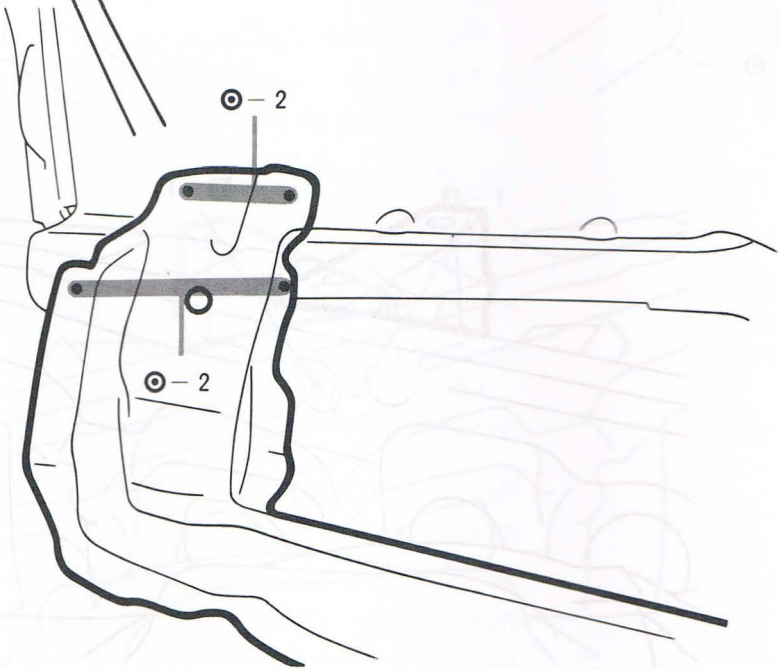
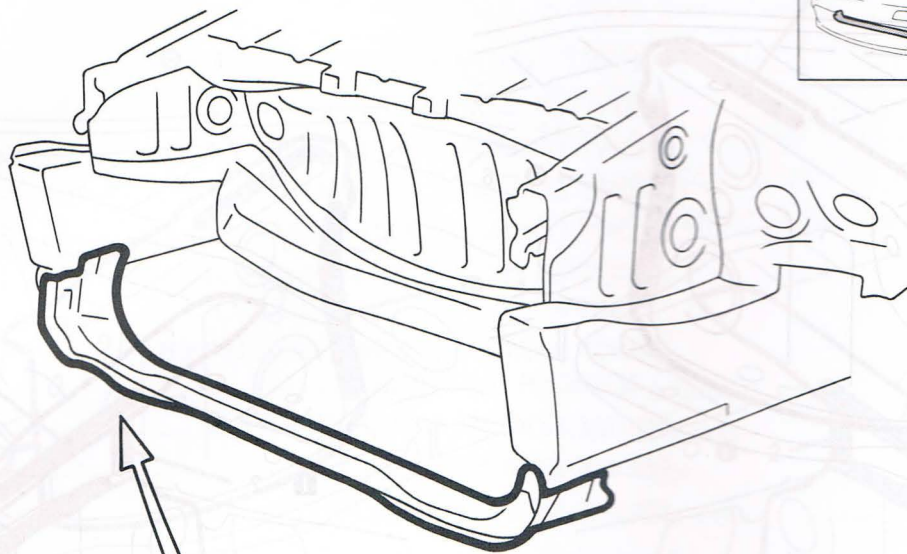
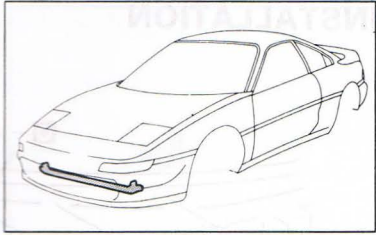
INSTALLATION



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

# FRONT CROSSMEMBER (ASSY)

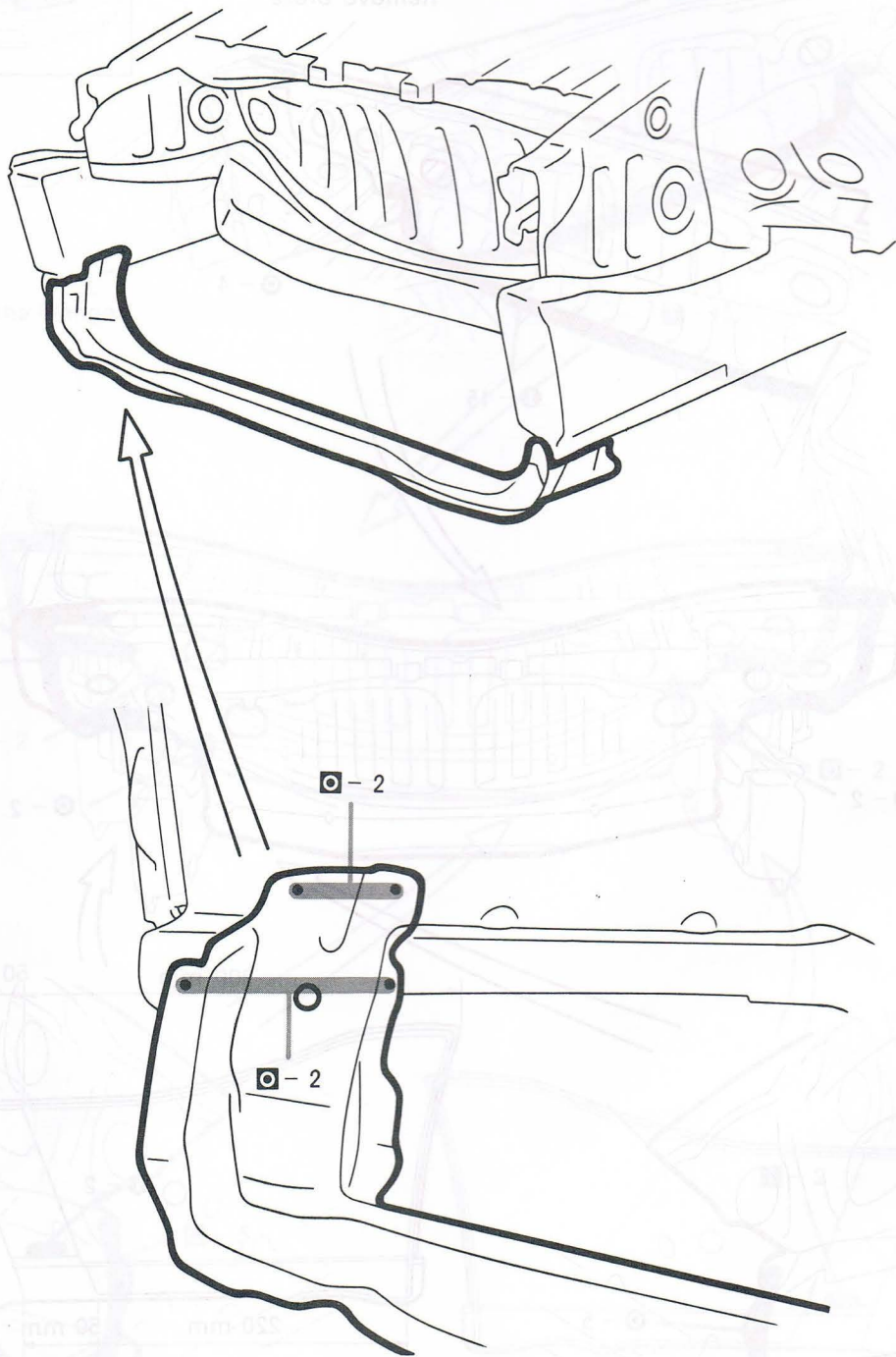
## REMOVAL



1. Change the oil and filter to the recommended product and amount. Temporarily install the new parts and make sure each part in accordance with the body dimension diagram.



INSTALLATION

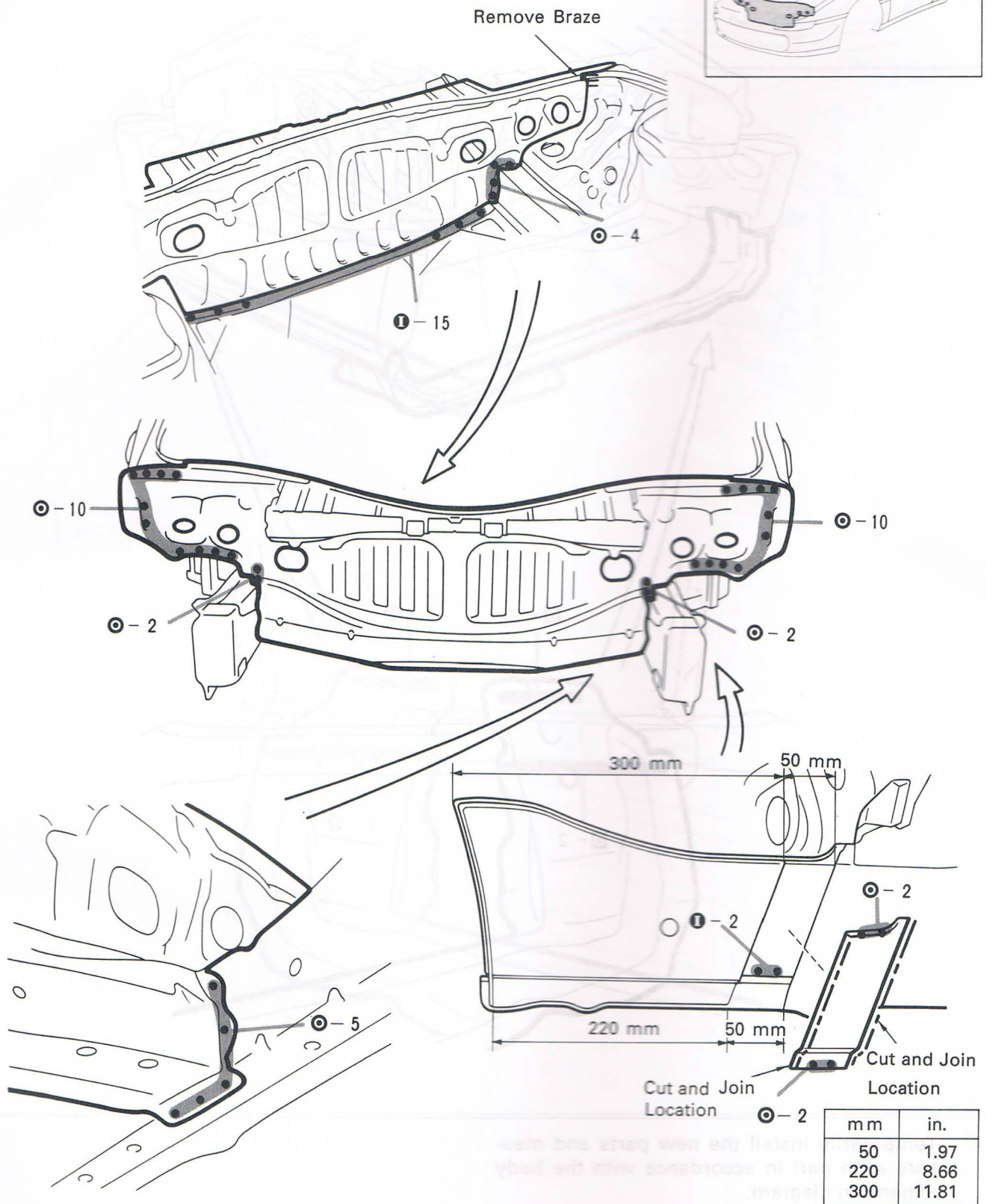
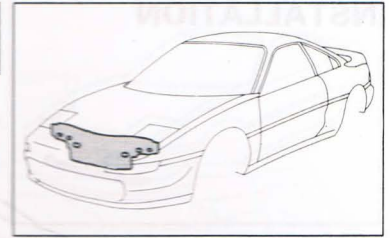


1. Temporarily install the new parts and measure each part in accordance with the body dimension diagram.

1. Cut out a section 80 mm (3.15 in.) wide from the front side member plate, then cut out the welded points of the front side member as shown above.

# FRONT LUGGAGE END PANEL (ASSY)

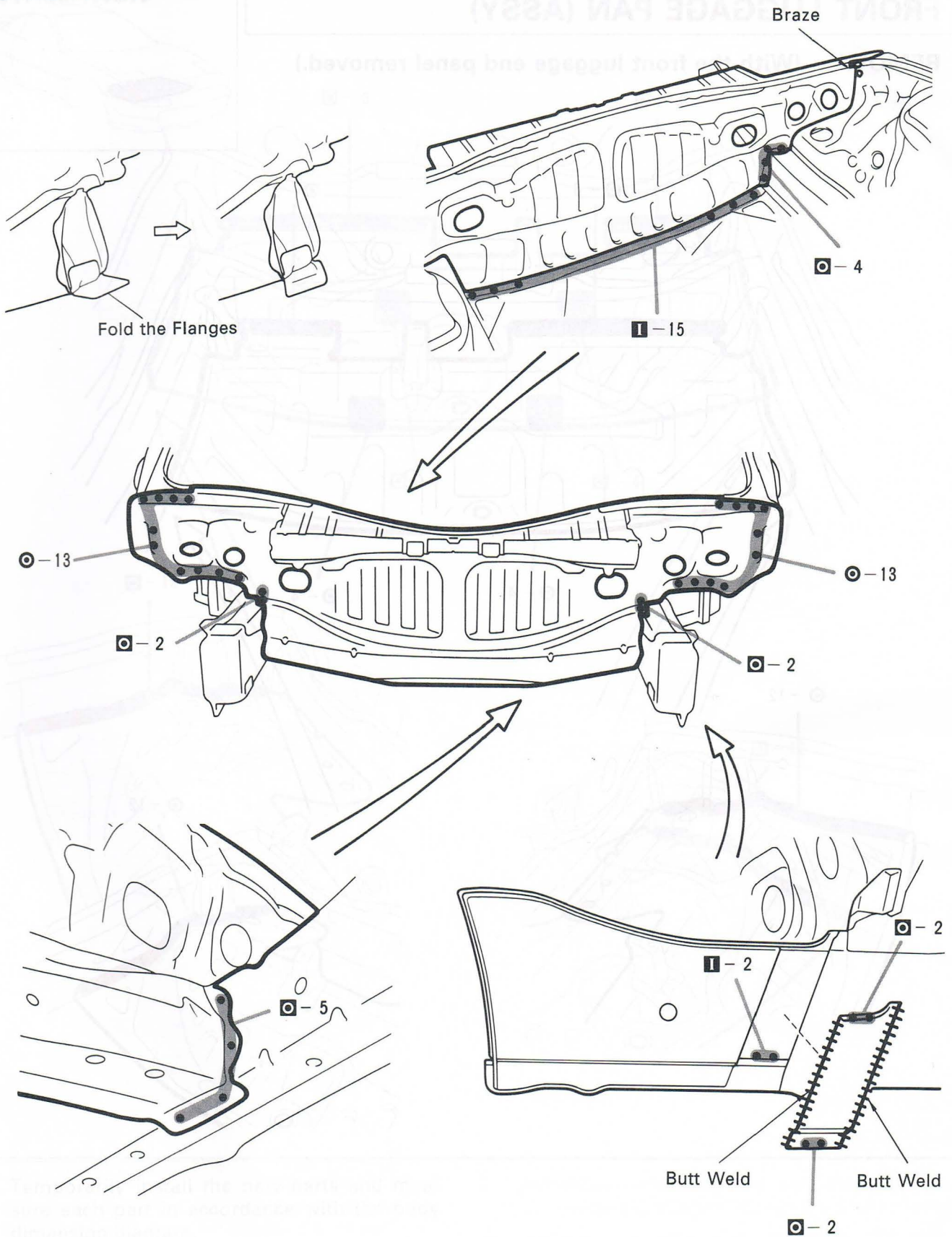
REMOVAL (With the radiator support removed.)



1. Cut out a section 50 mm (1.97 in.) wide from the front side member plate, then cut out the welded points of the front side member, as shown above.



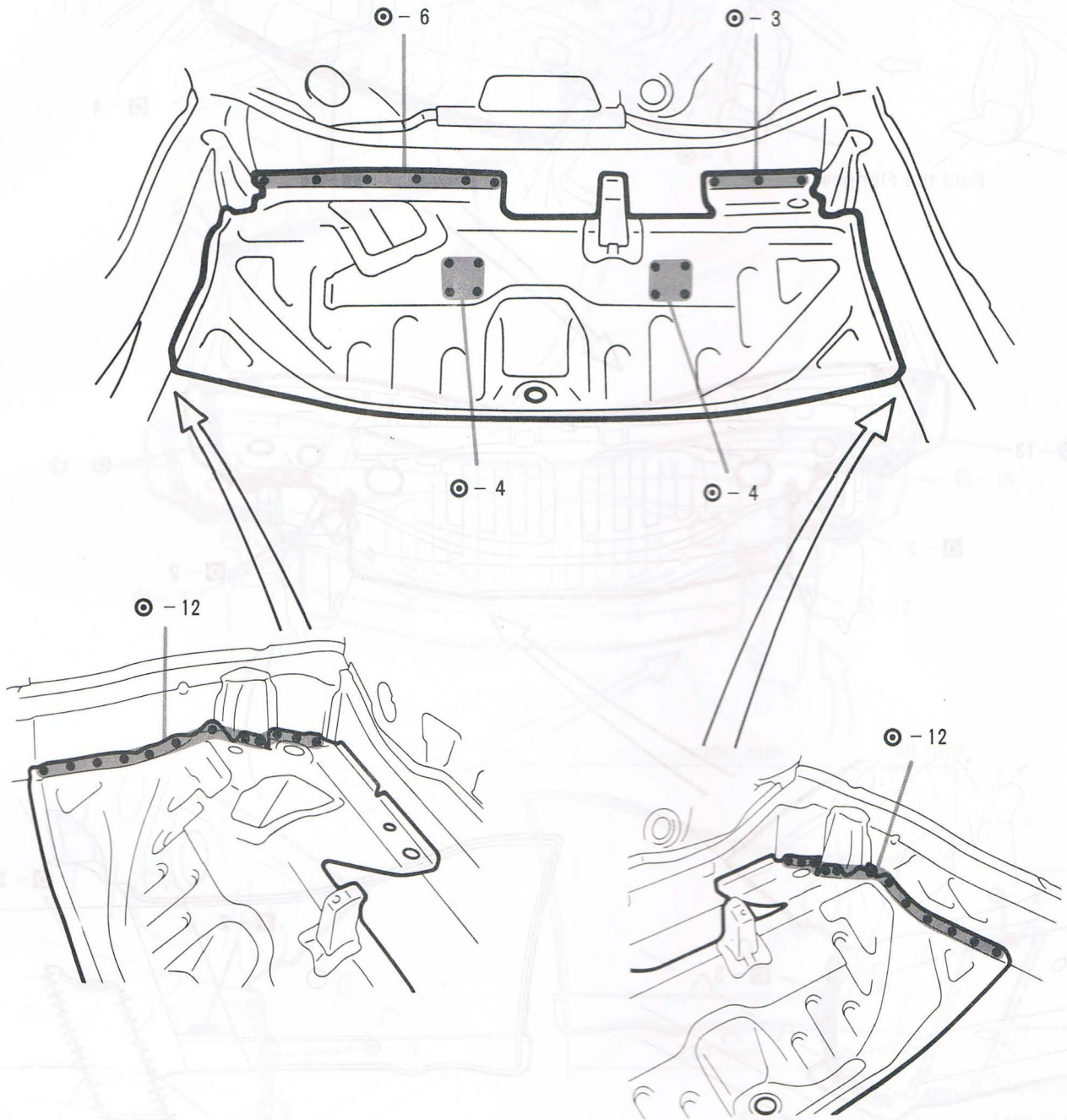
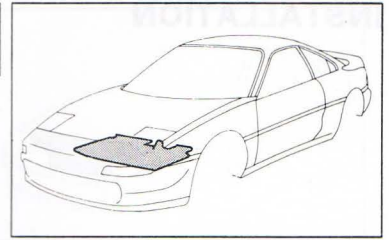
INSTALLATION



1. Whenever installing the new components, first fold the welding flanges of both the components and front side member and install.

# FRONT LUGGAGE PAN (ASSY)

REMOVAL (With the front luggage end panel removed.)

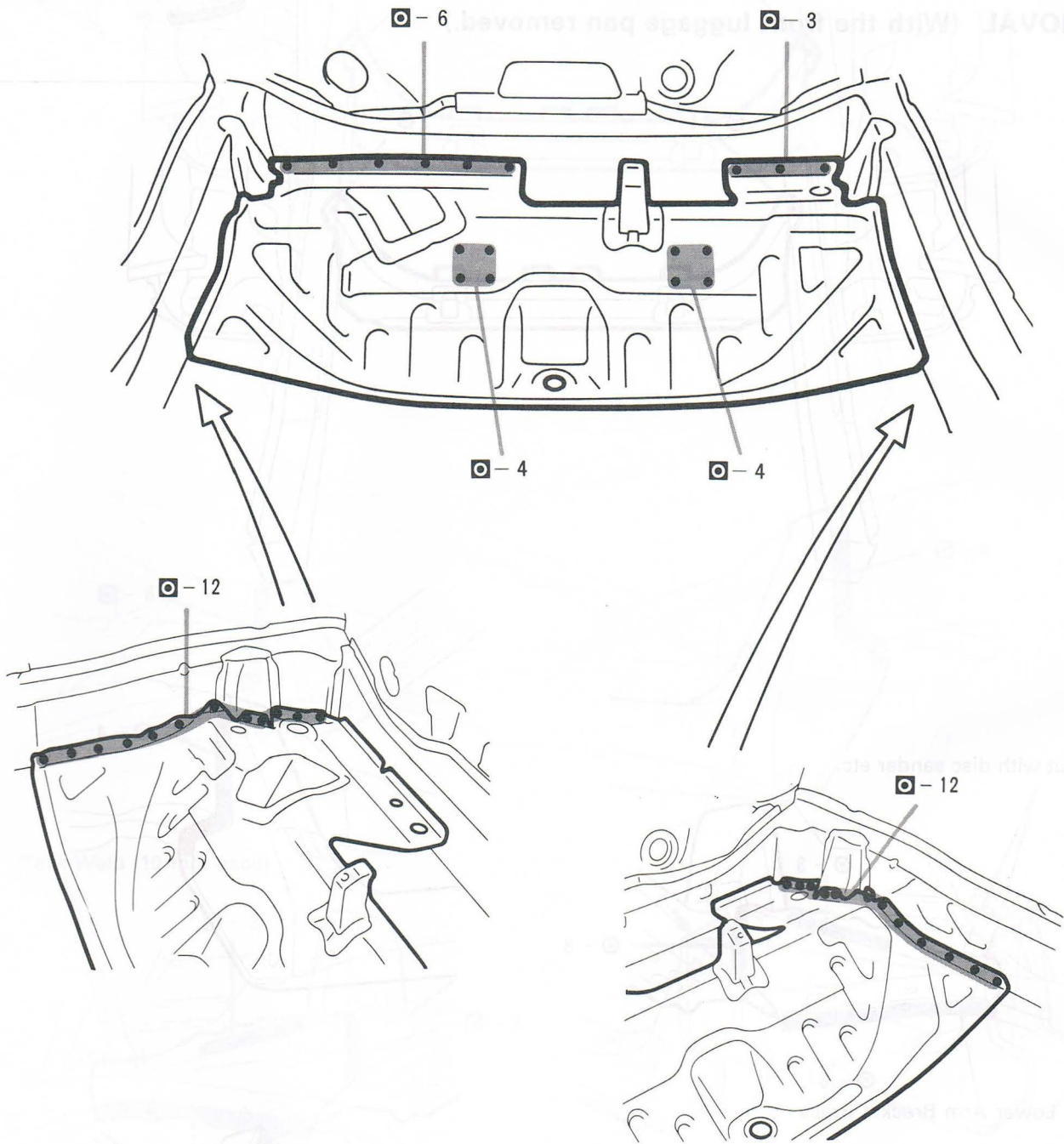


Butt Weld

Whenever installing the new components, first fold the welding flanges of both the components and front side member and install.

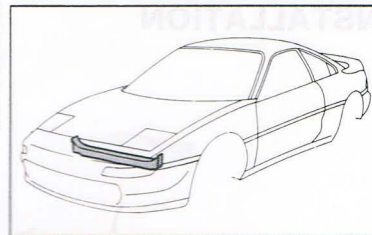


INSTALLATION

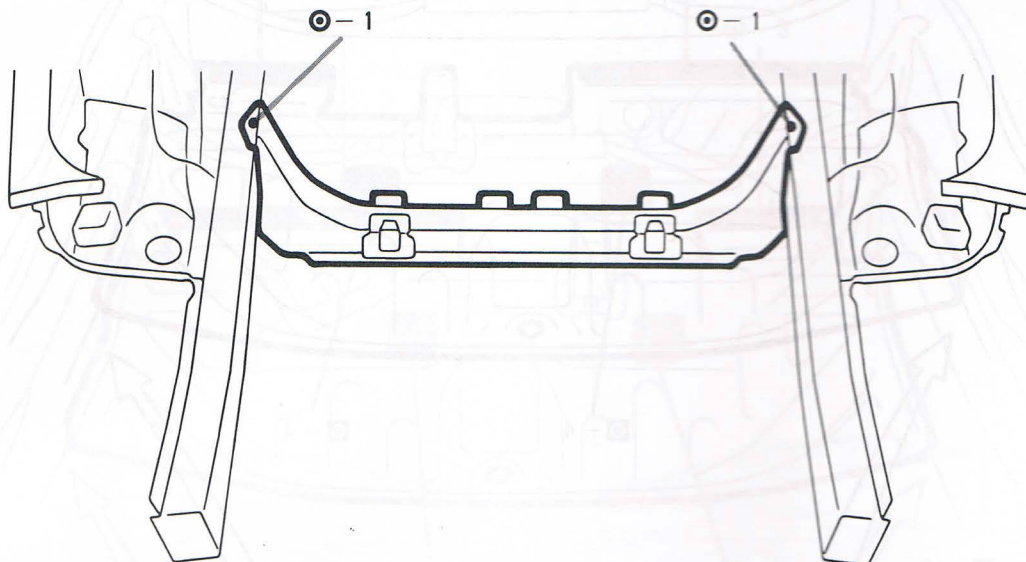


1. Temporarily install the new parts and measure each part in accordance with the body dimension diagram.

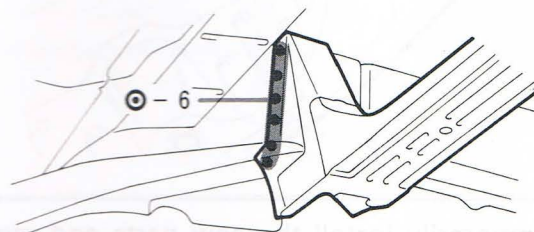
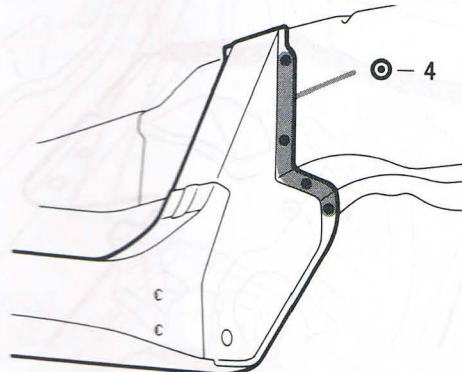
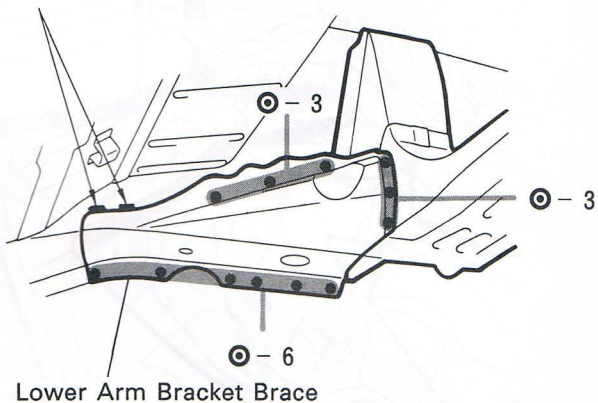
# STEERING GEAR BOX SUPPORT MEMBER (ASSY)



REMOVAL (With the front luggage pan removed.)



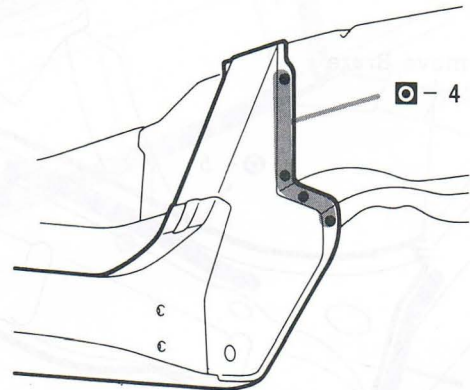
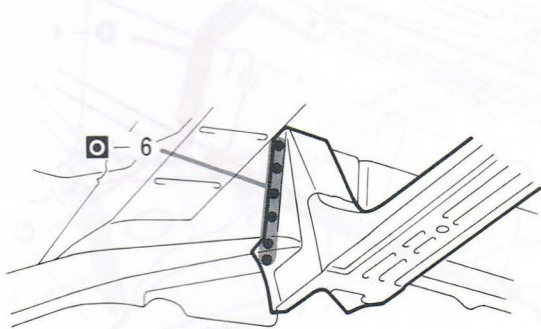
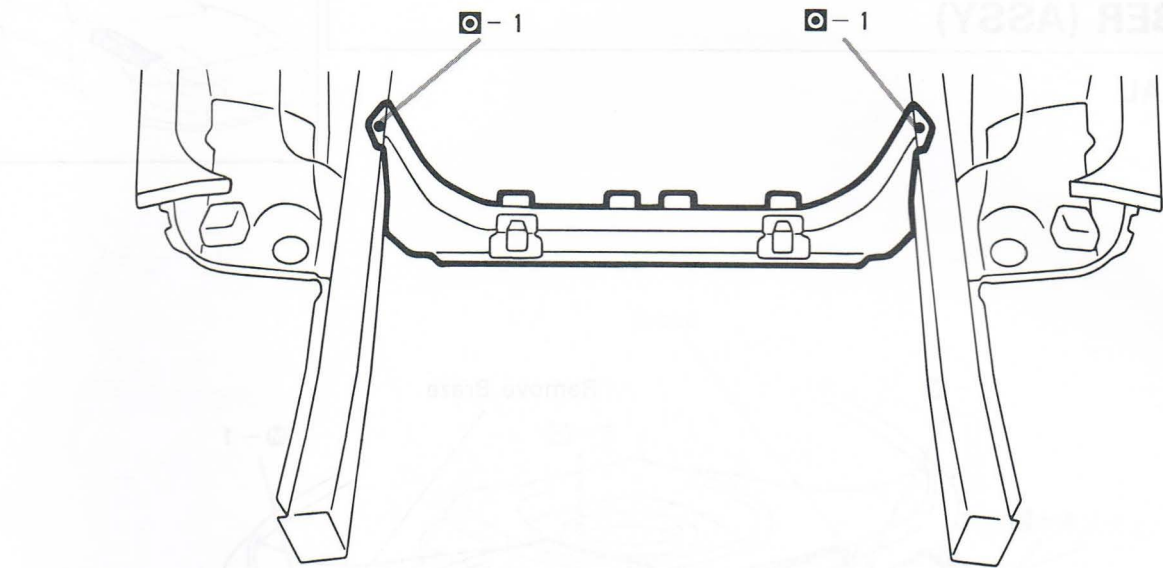
Cut with disc sander etc.



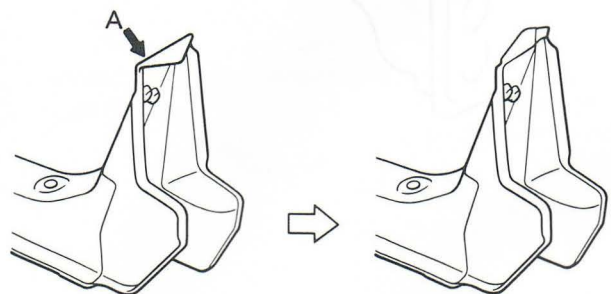
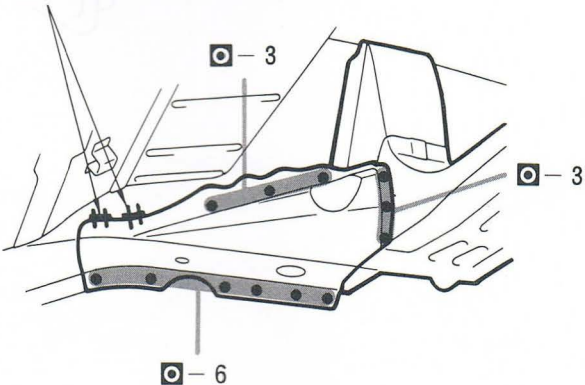
1. Before removing the steering gear box support member, remove the lower arm bracket brace.



**INSTALLATION**



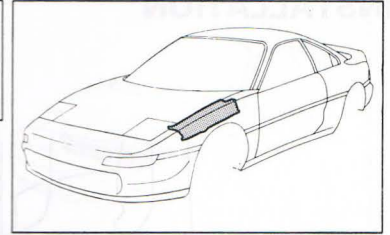
Tack Weld (10 mm each)



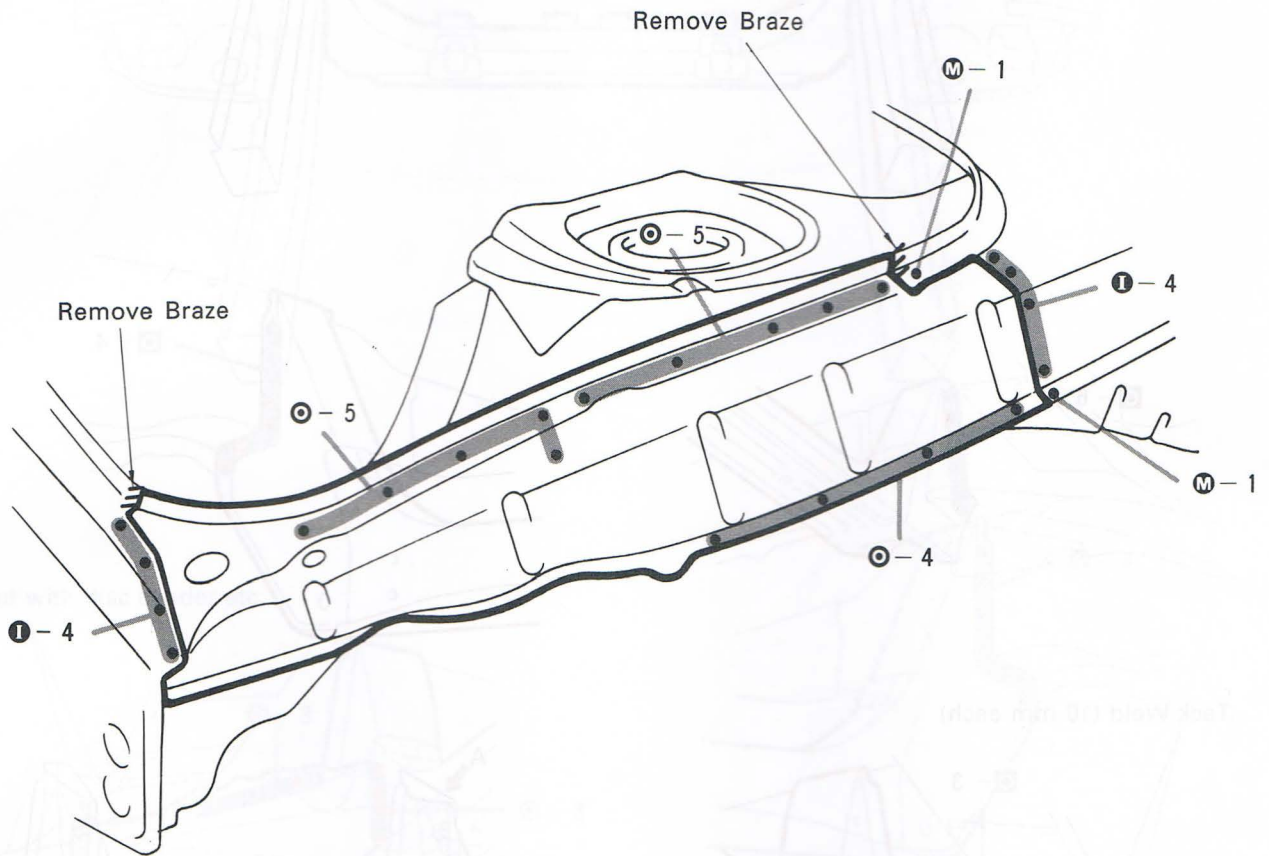
mm	in.
10	0.39

1. Remove the lower arm bracket brace from the new components, install the crossmember first and then re-install the lower arm bracket brace.
2. Whenever installing the new components, first raise the flanges of both the components.
3. Temporarily install the new parts and measure each part in accordance with the body dimension diagram.

# FRONT APRON TO COWL SIDE UPPER MEMBER (ASSY)



## REMOVAL



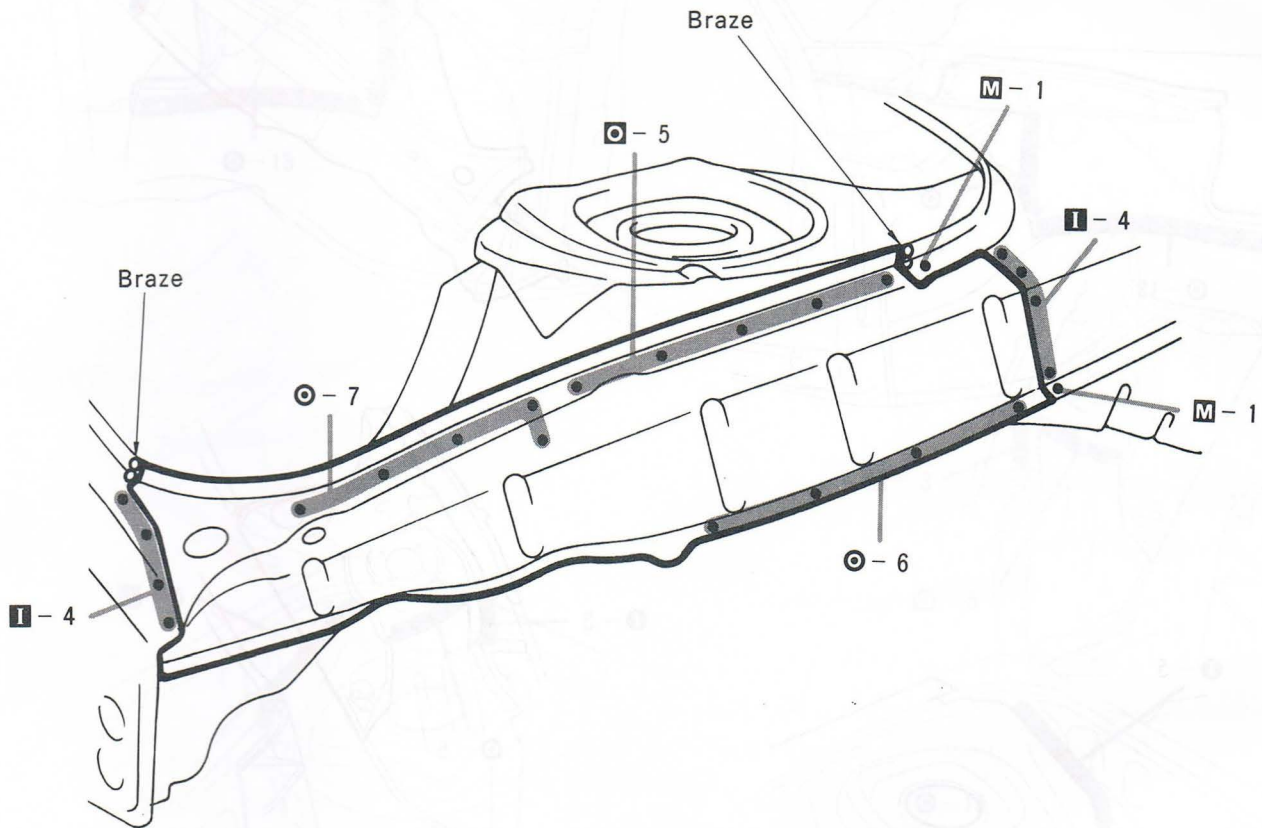
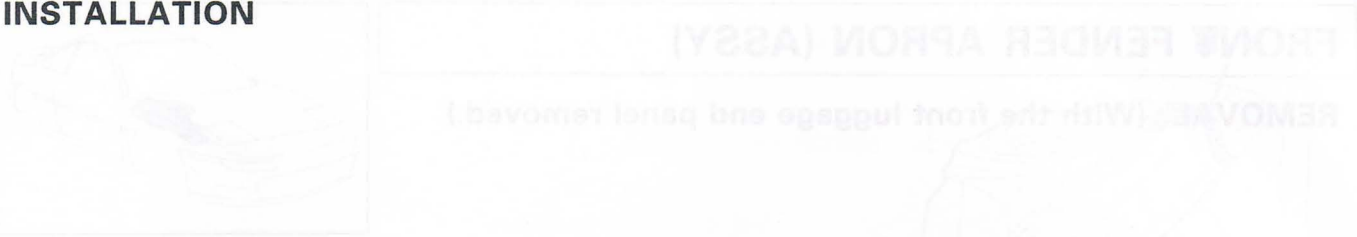
10 000 000000

Remove the lower arm bracket brace from the new component. Install the crossmember first and then re-install the lower arm bracket brace.

Whenever installing the new components, first raise the fenders of both the components. Temporarily install the new parts and measure each part in accordance with the body dimensions diagram with the lower arm bracket brace.



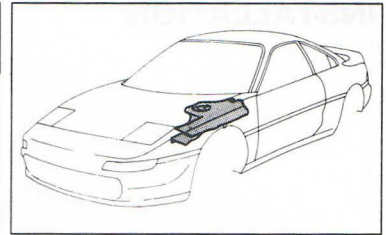
INSTALLATION



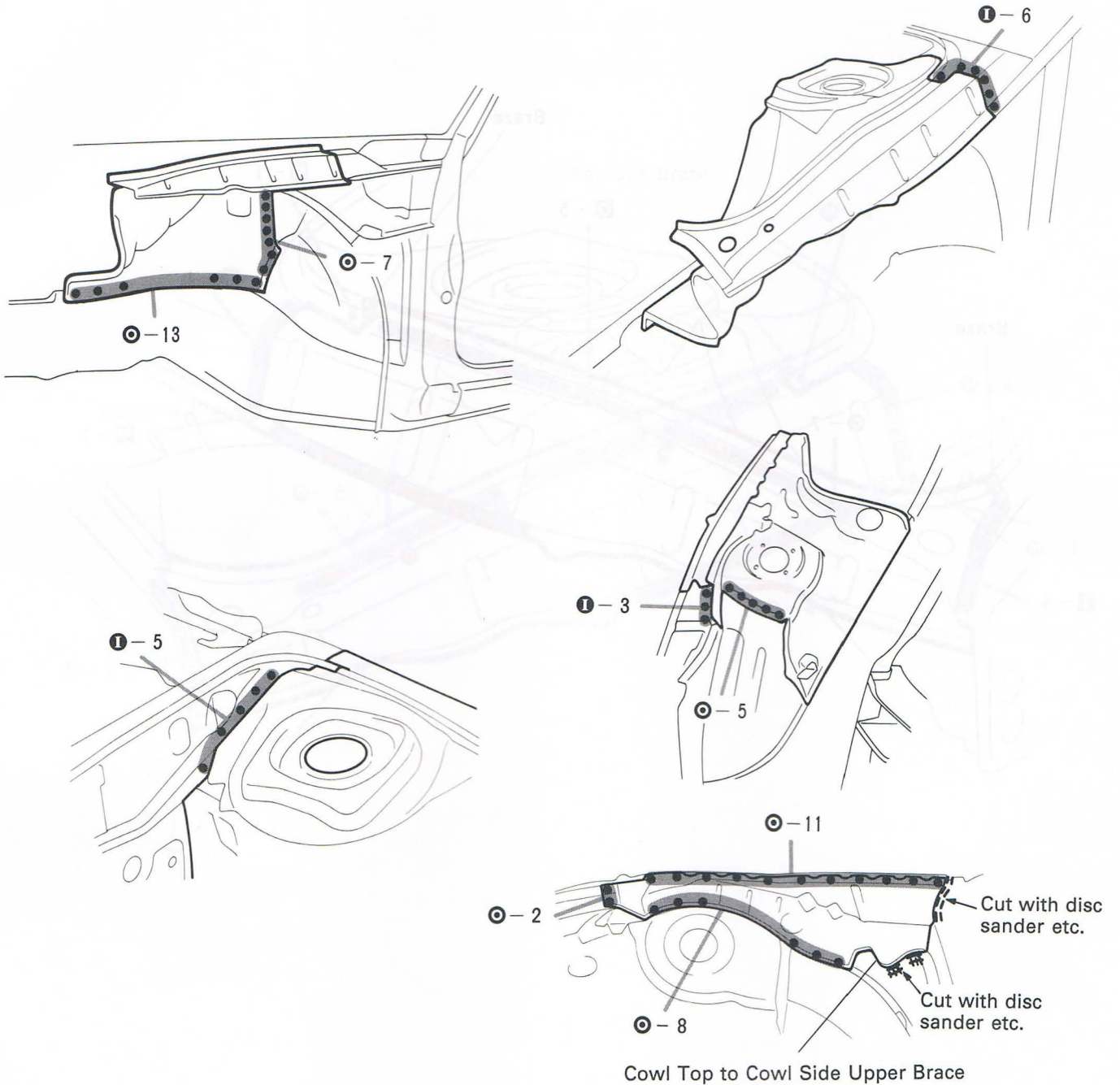
1. Temporarily install the new parts and measure each part in accordance with the body dimension diagram.

**FRONT FENDER APRON (ASSY)**

**REMOVAL (With the front luggage end panel removed.)**



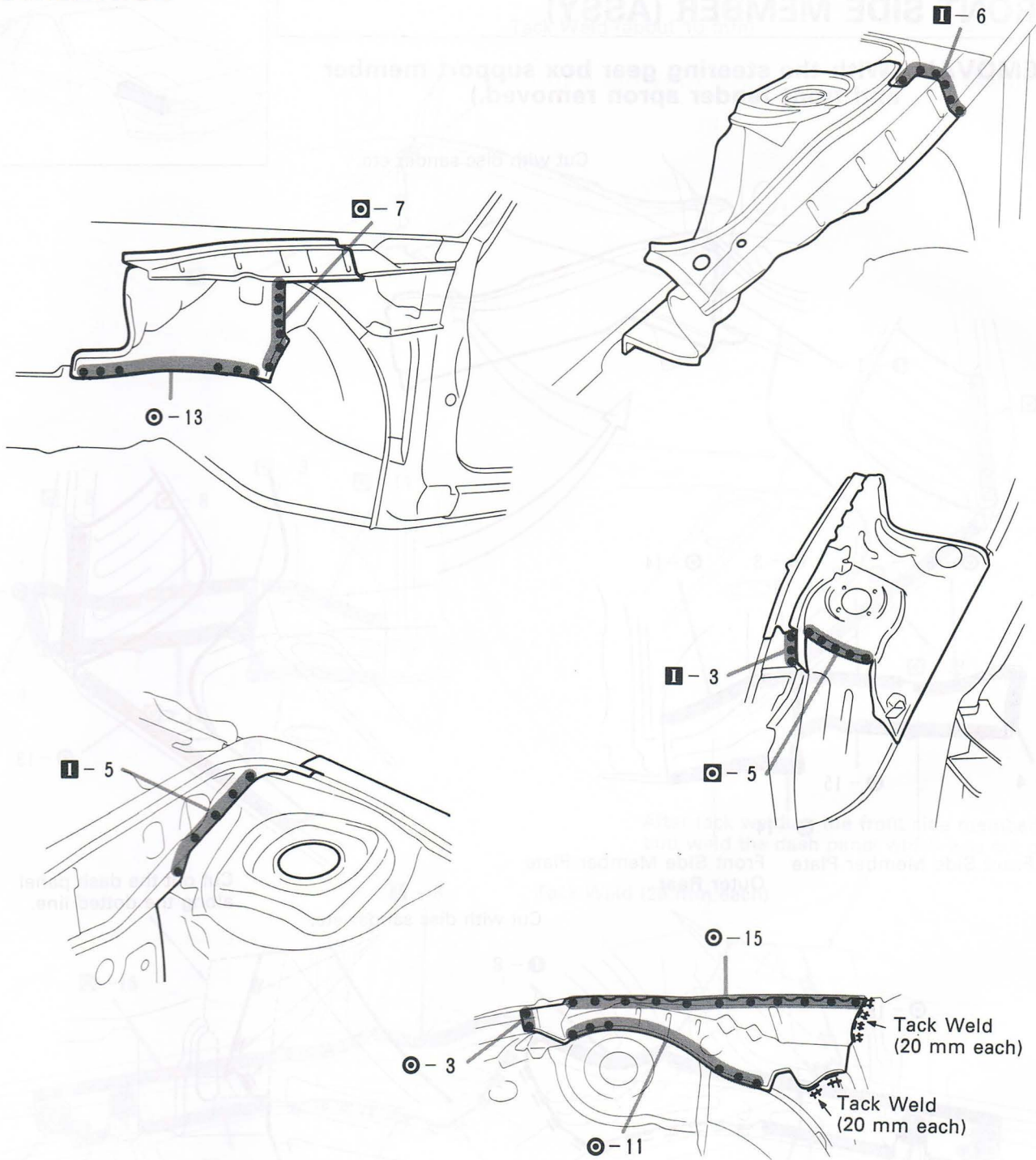
REMOVAL



1. Before removing the front fender apron, remove the cowl top to cowl side upper brace.



INSTALLATION

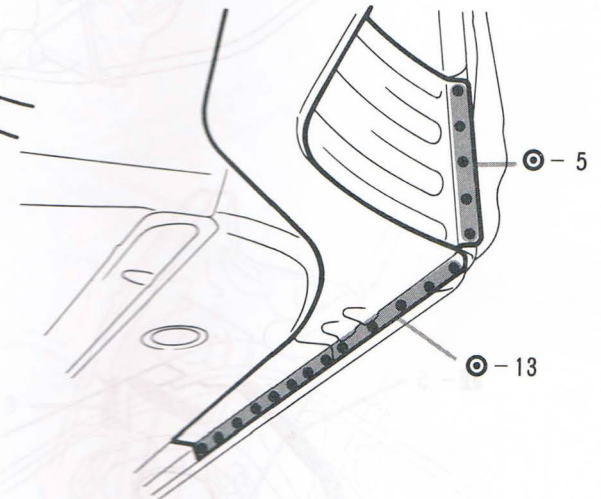
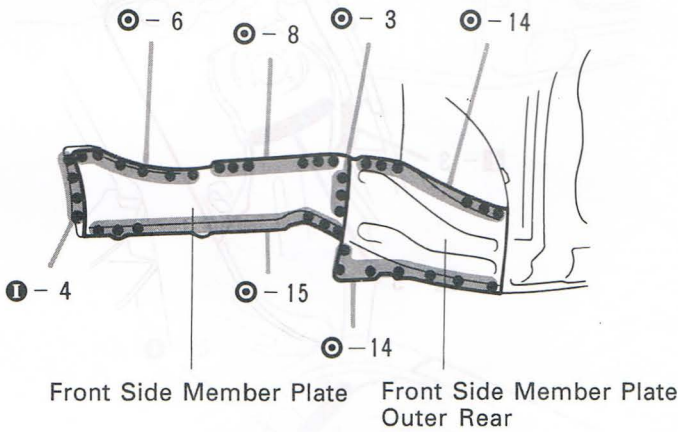
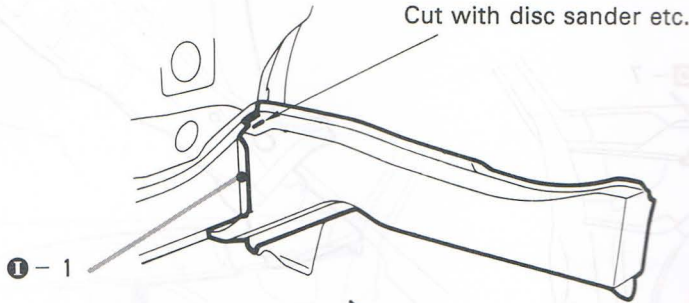
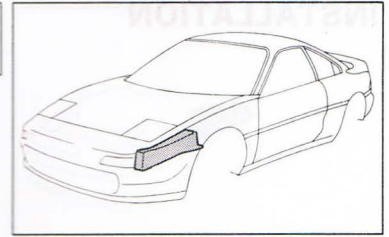


mm	in.
20	0.79

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

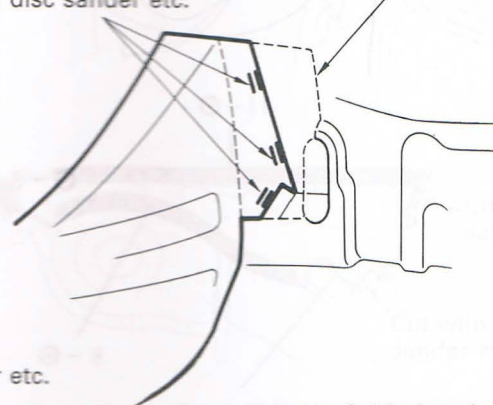
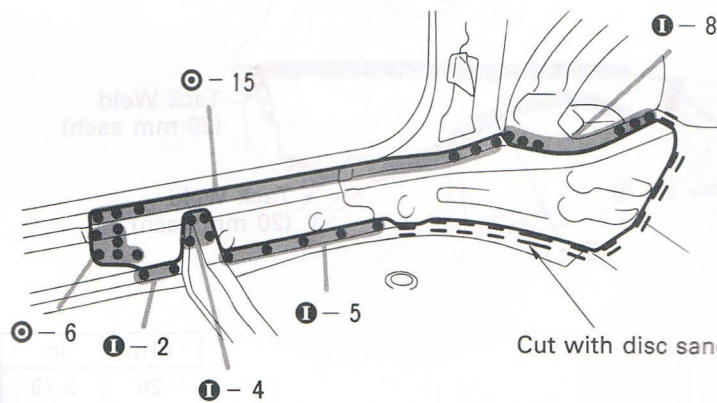
# FRONT SIDE MEMBER (ASSY)

**REMOVAL** (With the steering gear box support member and front fender apron removed.)



Cut out the dash panel along the dotted line.

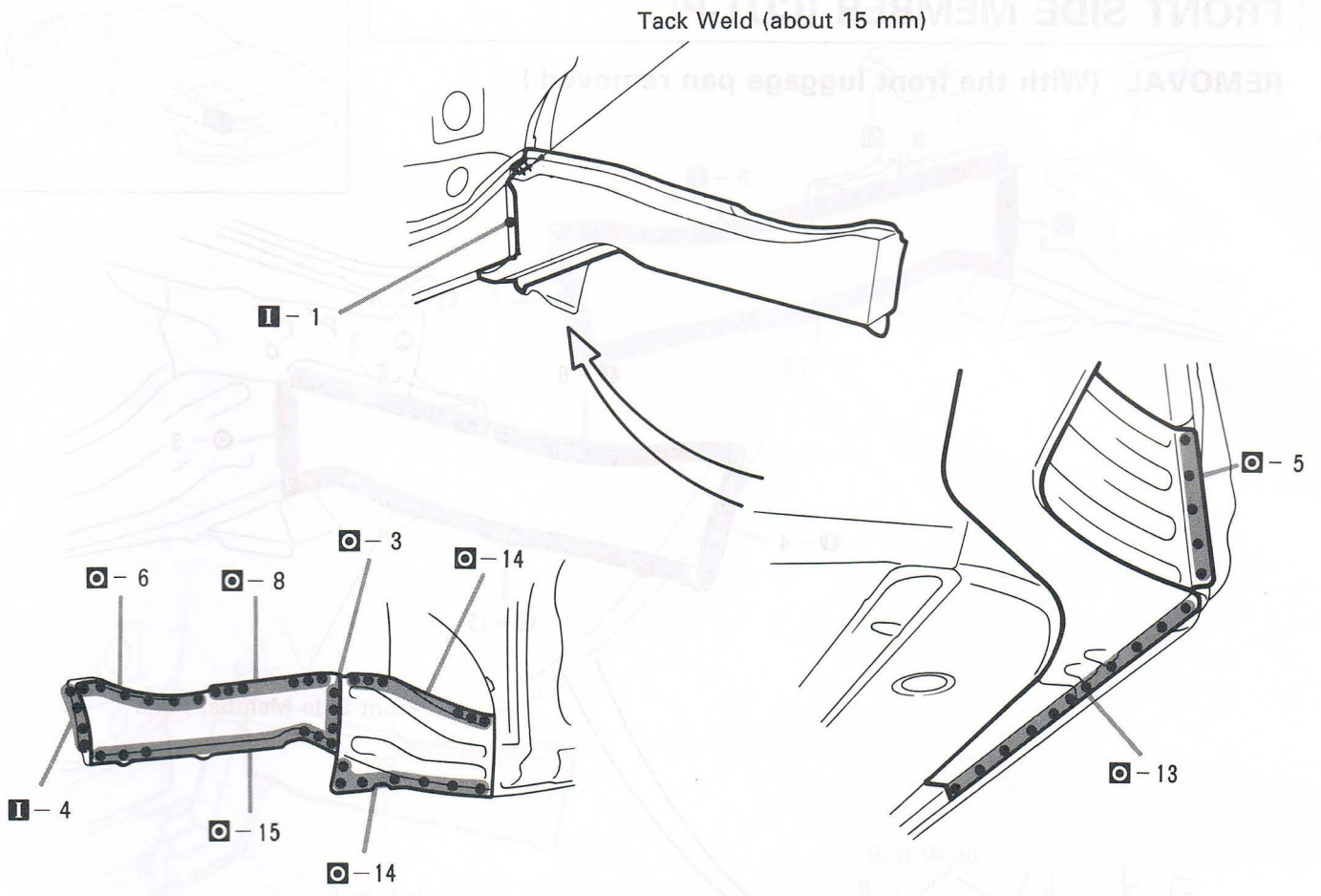
Cut with disc sander etc.



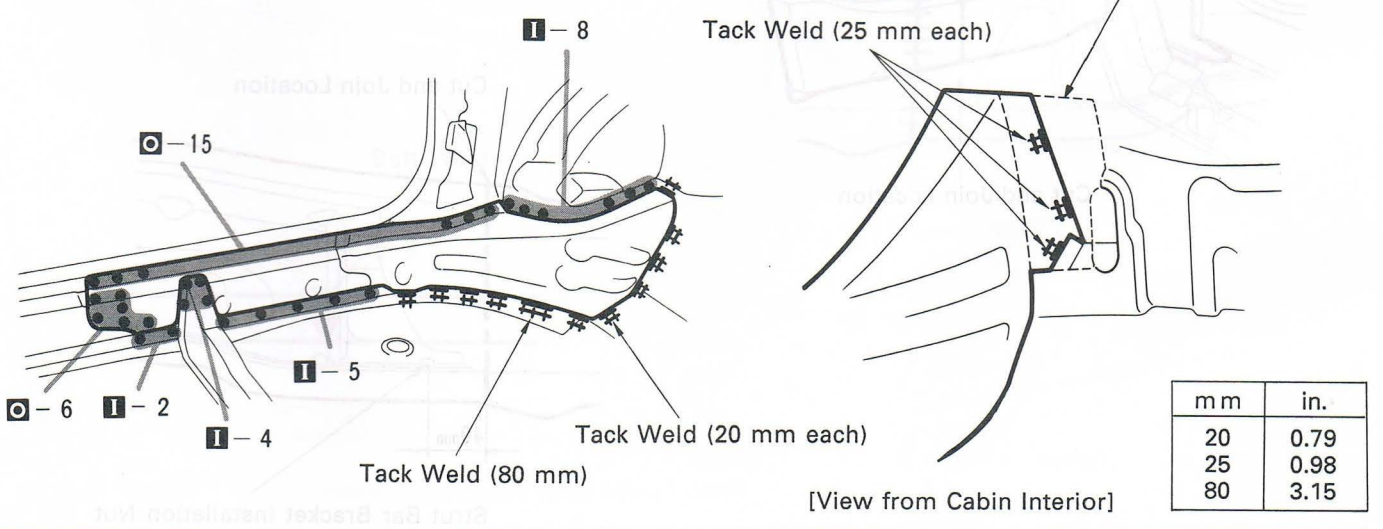
1. Change front side member plate and front side member plate outer rear at the same time.



**INSTALLATION**



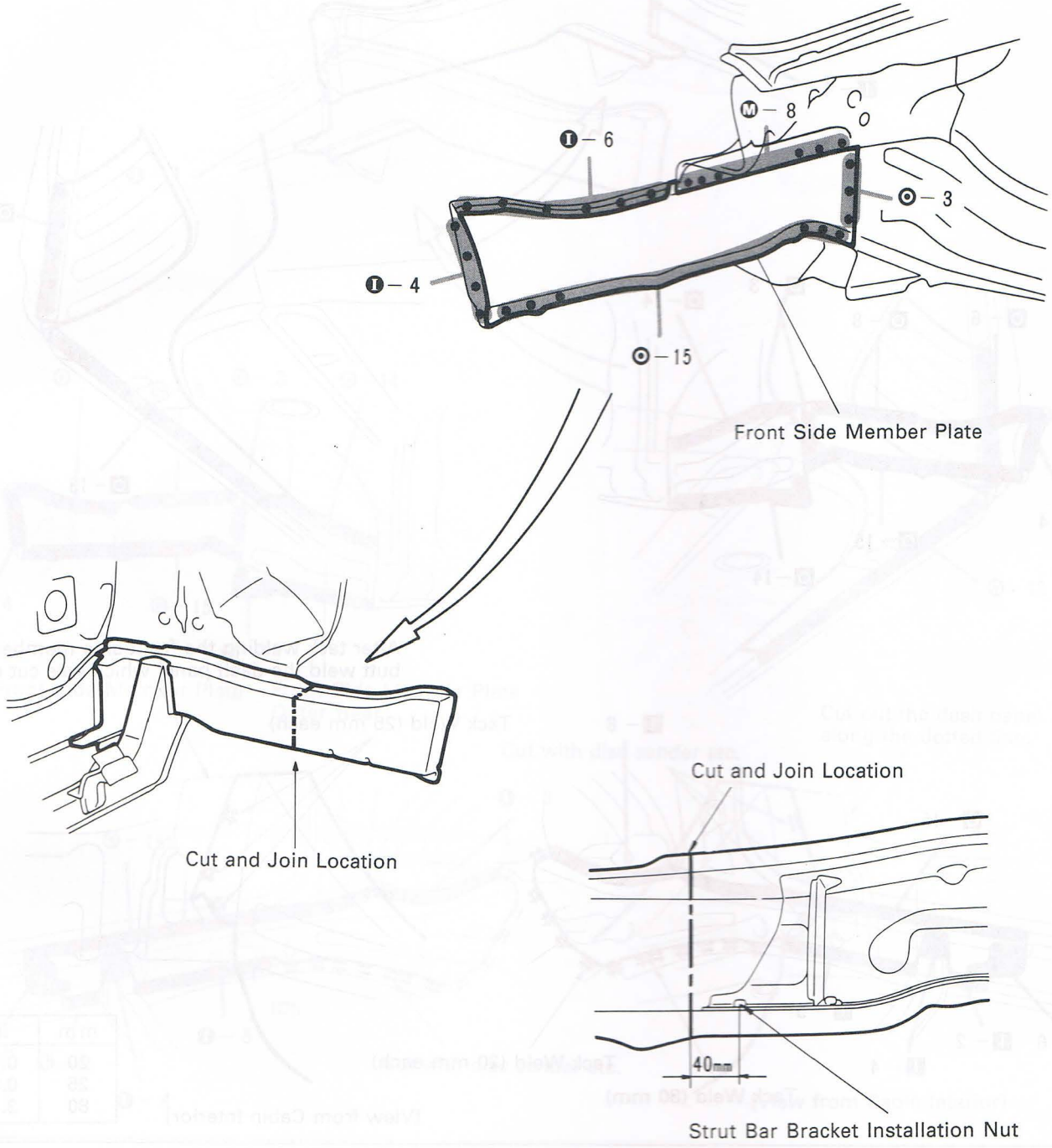
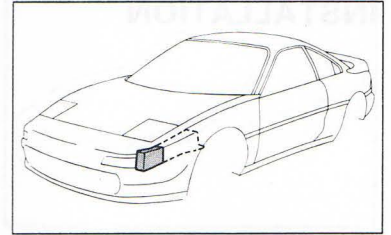
After tack welding the front side member, butt weld the dash panel which was cut out.



1. Temporarily install the new parts and measure each part in accordance with the body dimension diagram.
2. After welding the front luggage end panel, install the front side member plate.

**FRONT SIDE MEMBER (CUT-P)**

**REMOVAL (With the front luggage pan removed.)**



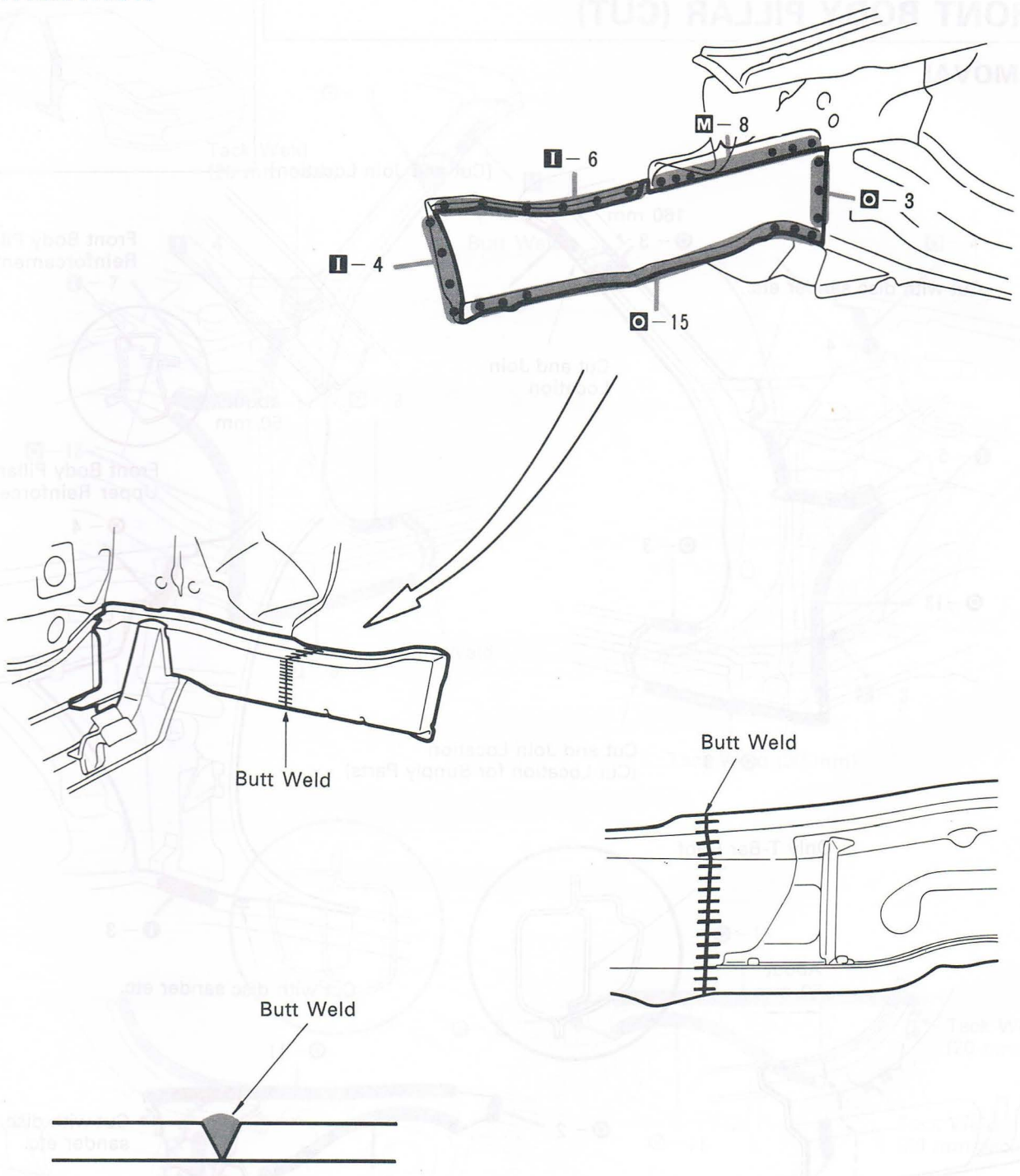
20	0.79
25	0.98
30	1.18
35	1.38
40	1.57

mm	in.
40	1.57

1. After removing the front side member plate, cut and join the parts at the location shown above.



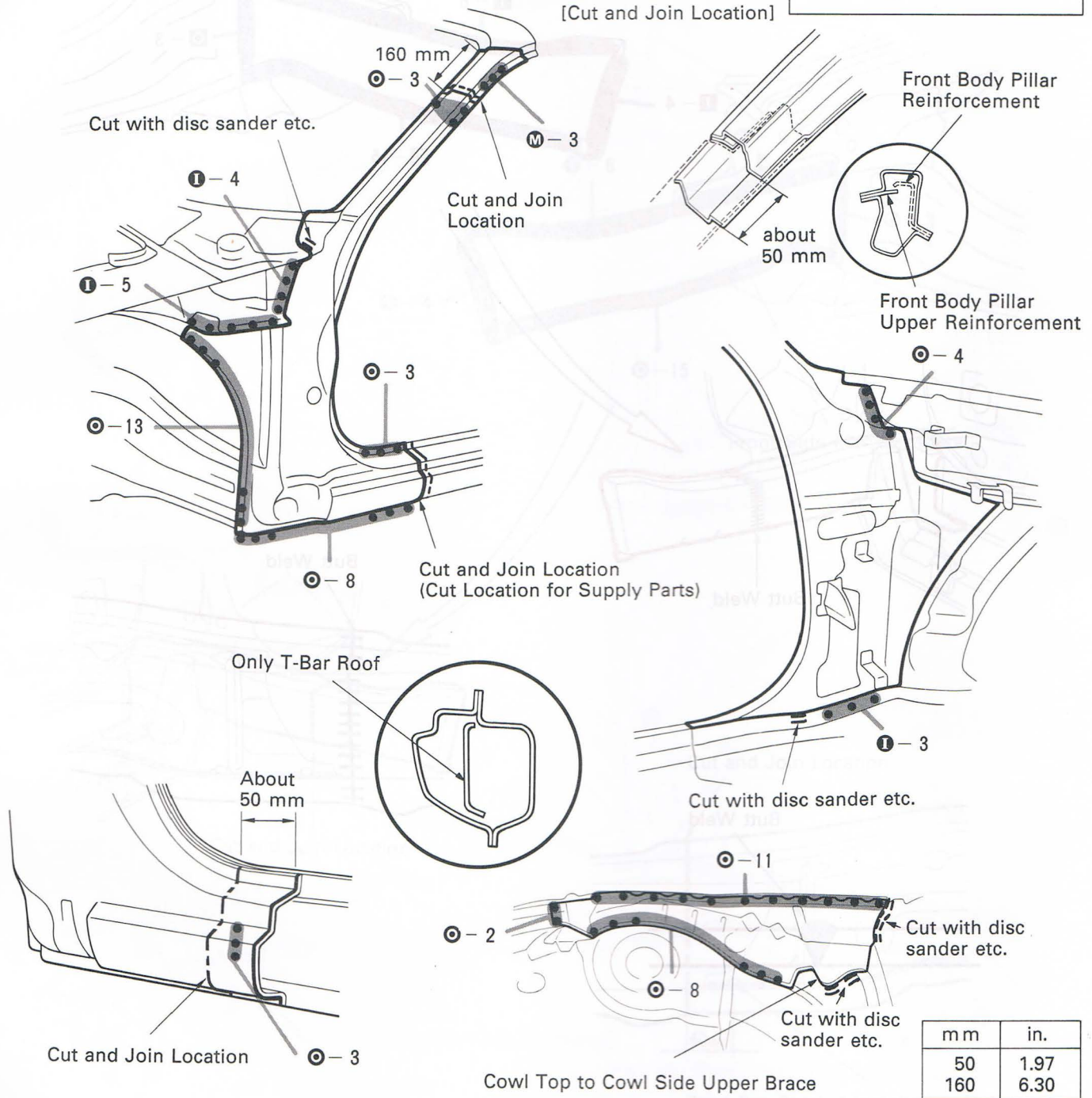
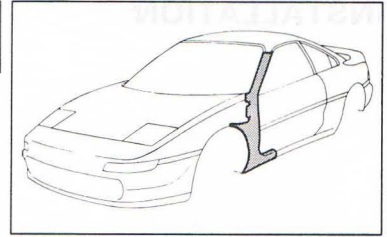
INSTALLATION



1. Temporarily install the new parts and measure each part in accordance with the body dimension diagram.
2. After welding the front luggage end panel, install the front side member plate.

# FRONT BODY PILLAR (CUT)

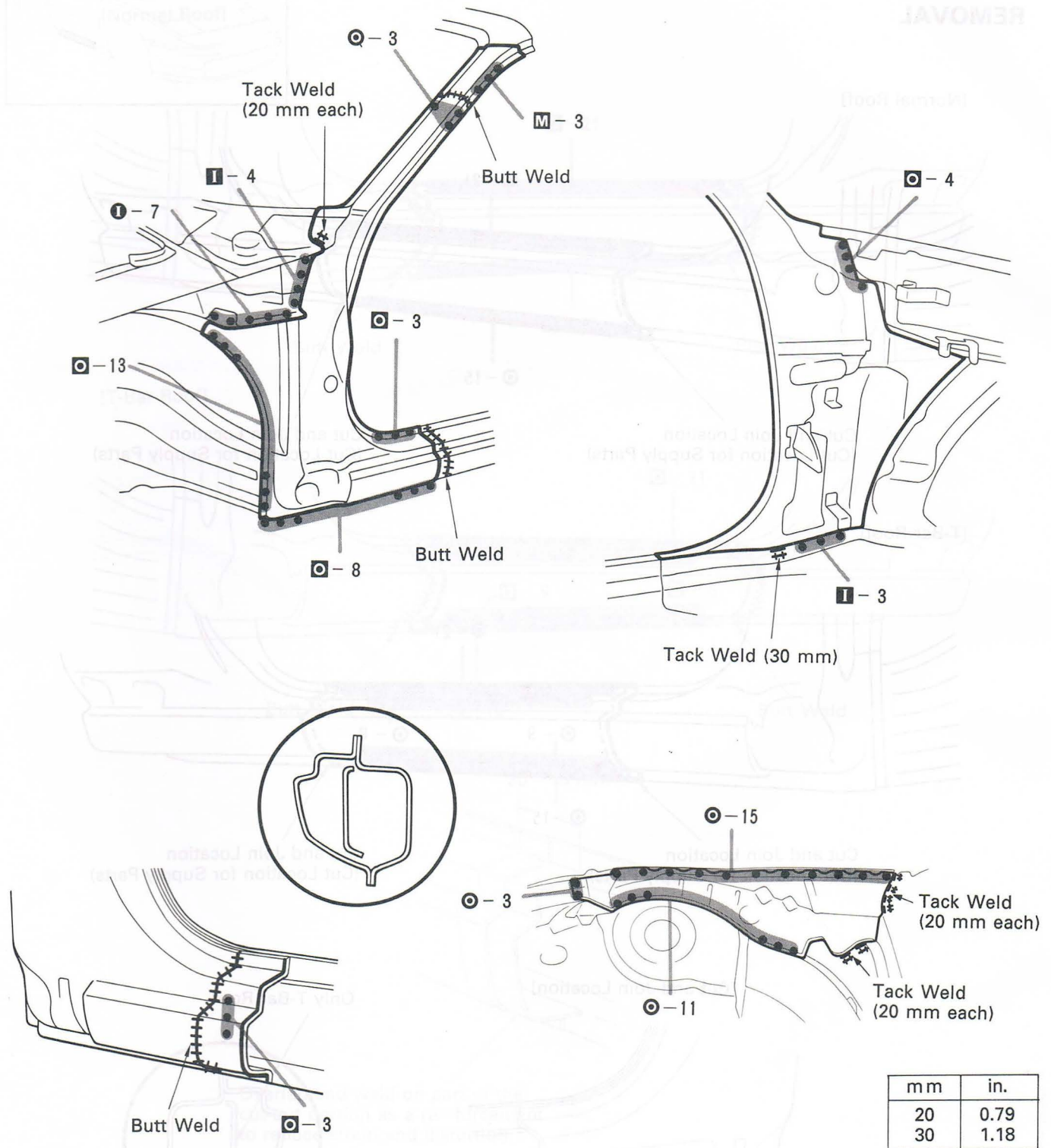
## REMOVAL



1. Cut and join the parts at the locations shown above.
  2. After removing the cowl top to cowl side upper brace; remove the front body pillar.
  3. For vehicles with T-Bar Roof, make the cut about 50 mm (1.97 in.) in front of the cut and join location on the rocker panel outer, then cut away the weld joints inside the rocker panel.
- HINT:**
- 1) As shown above, cut and join the front body pillar outer and inner panels at a position shifted about 50 mm (1.97 in.).
  - 2) Remove the front body pillar upper reinforcement remaining on the body.



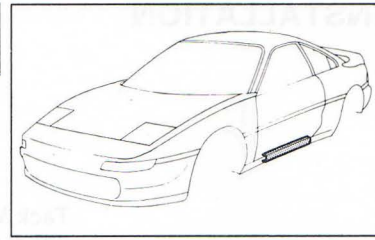
INSTALLATION



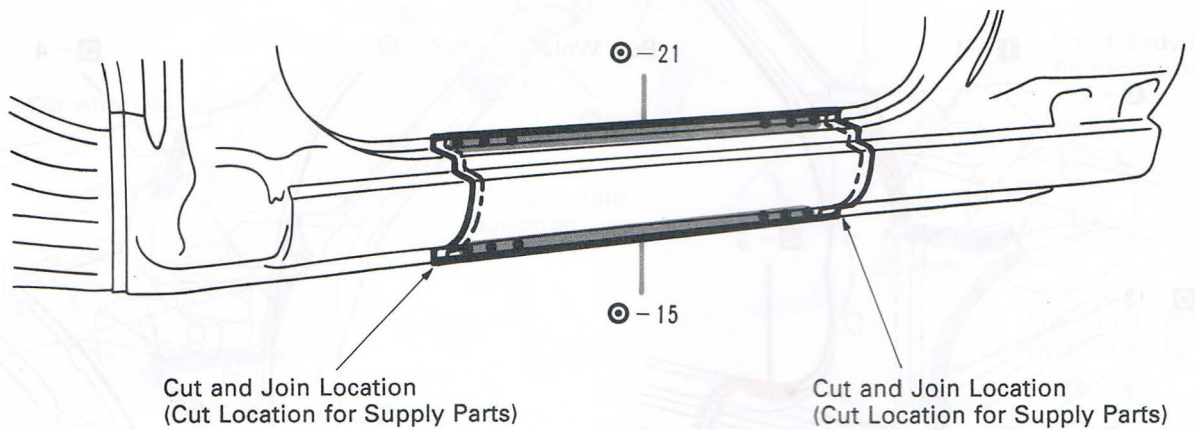
1. Temporarily install the new parts and measure each part in accordance with the body dimension diagram.
2. Before welding the new parts, temporarily install the front door, front fender, hood, and windshield glass and check the fit.
3. For vehicles with T-Bar Roof, cut the new parts about 50 mm (1.97 in.) in front of the cut and join location on the rocker panel outer. After making the welds inside the rocker panel, perform butt welding.

## OUTER ROCKER PANEL (CUT)

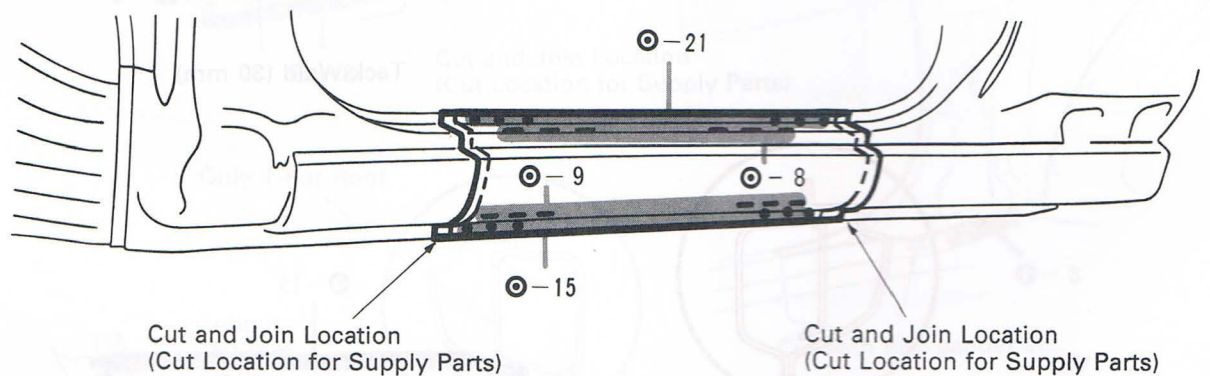
### REMOVAL



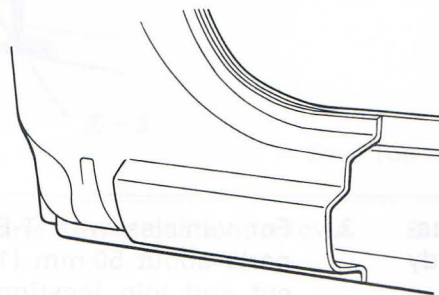
[Normal Roof]



[T-Bar Roof]



[Cut and Join Location]



Only T-Bar Roof

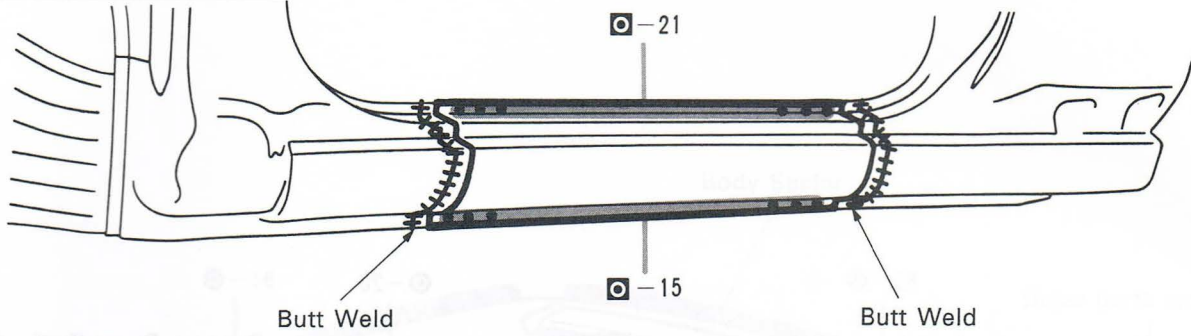


1. Cut and join the parts at the locations shown above.

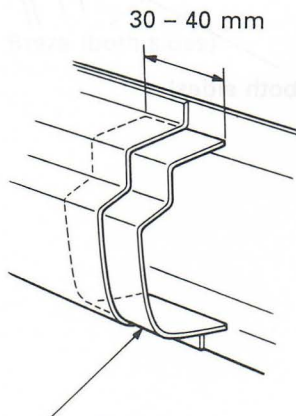
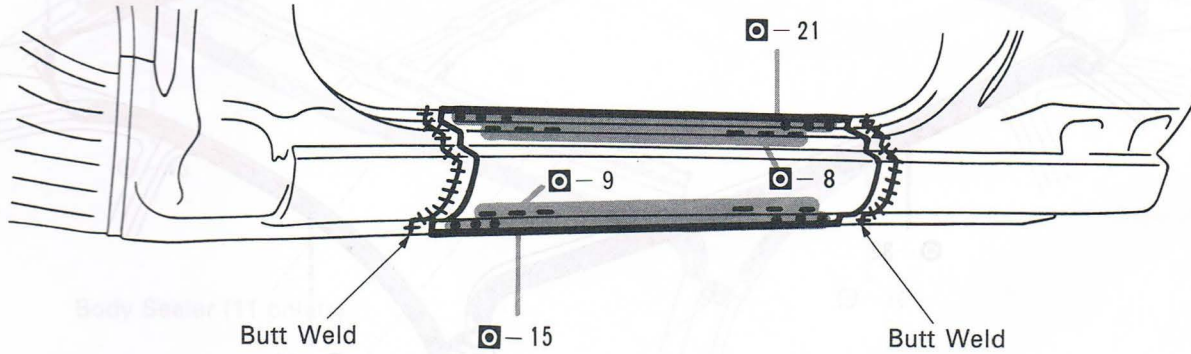


INSTALLATION

[Normal Roof]



[T-Bar Roof]



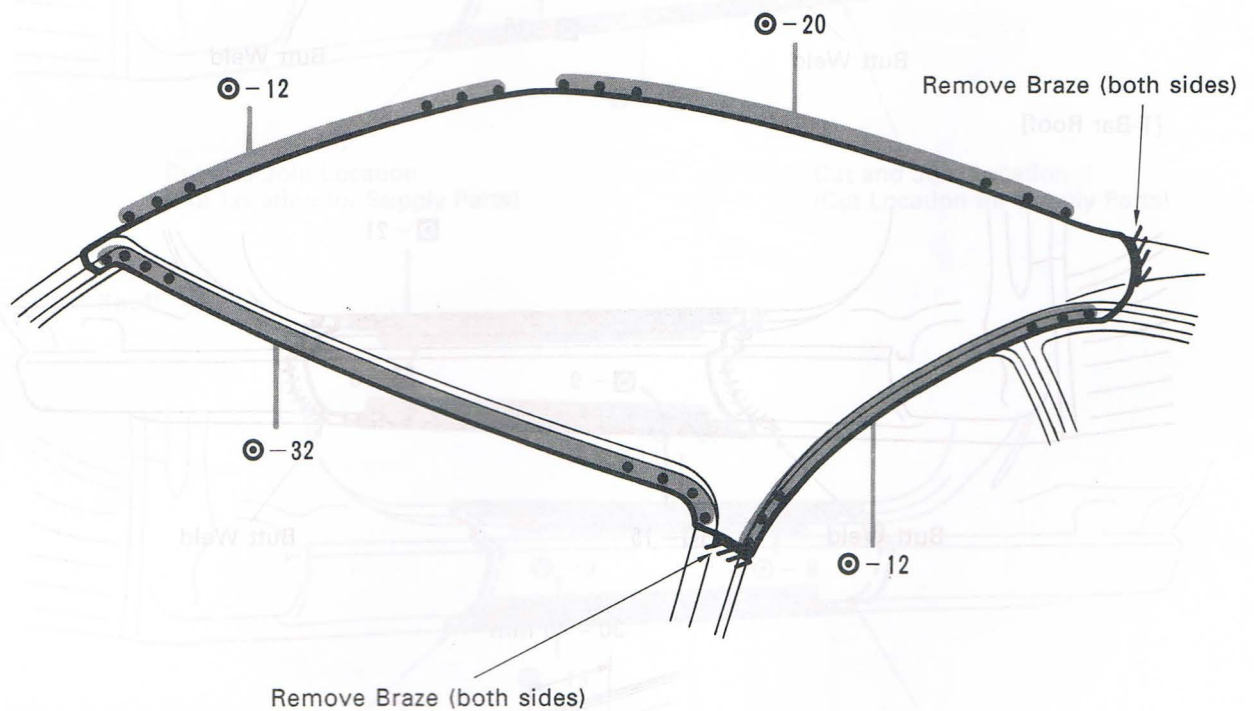
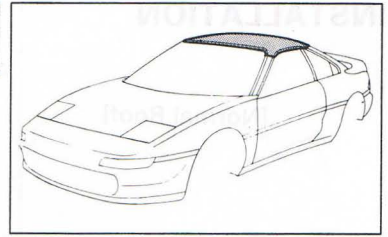
Overlap and weld on part of the cut-out portion as a reinforcement to reduce strain and distortion.

mm	in.
30	1.18
40	1.57

1. Temporarily install the new parts and check the fit of the front door.

## ROOF PANEL (ASSY): Normal Roof

### REMOVAL



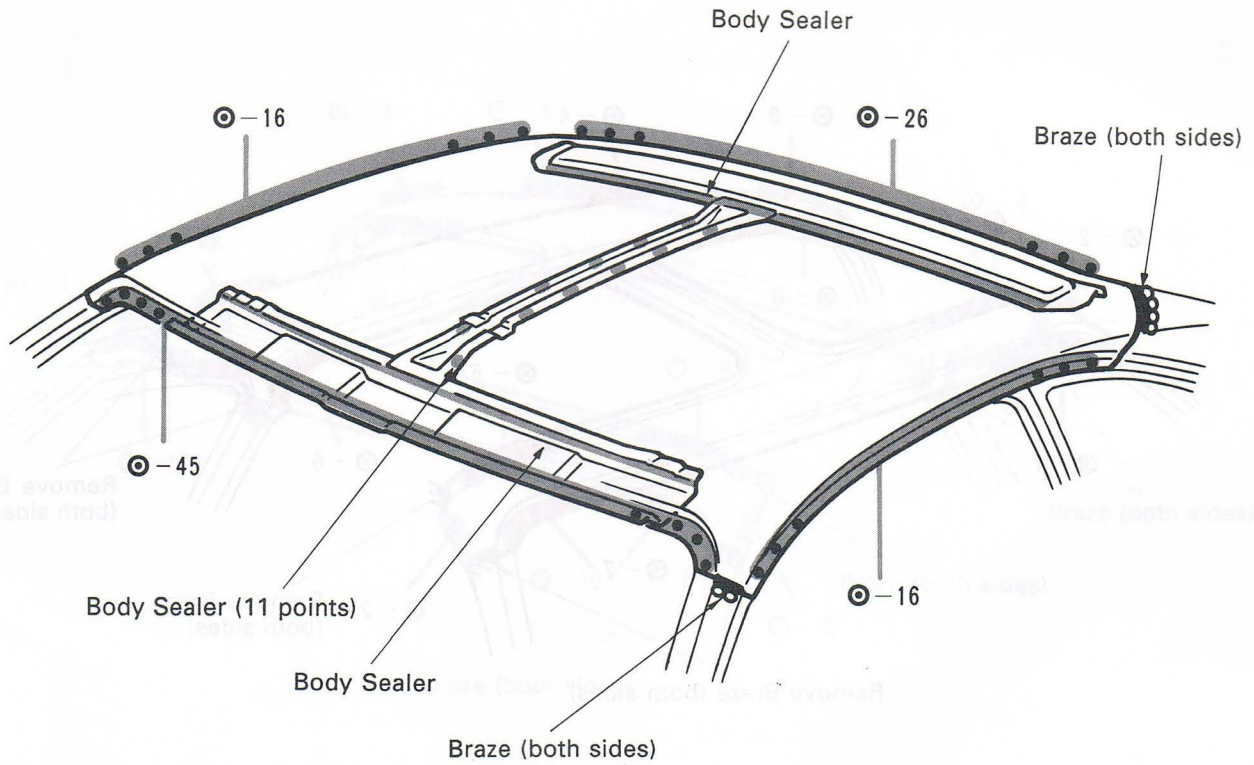
in	mm
1/8	32
1/4	64

1. Heat the brazed area of the front body pillar and quarter panel and scrape off the brazing with a wire brush.

**HINT:** Be careful not to overheat the pillar.



INSTALLATION



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

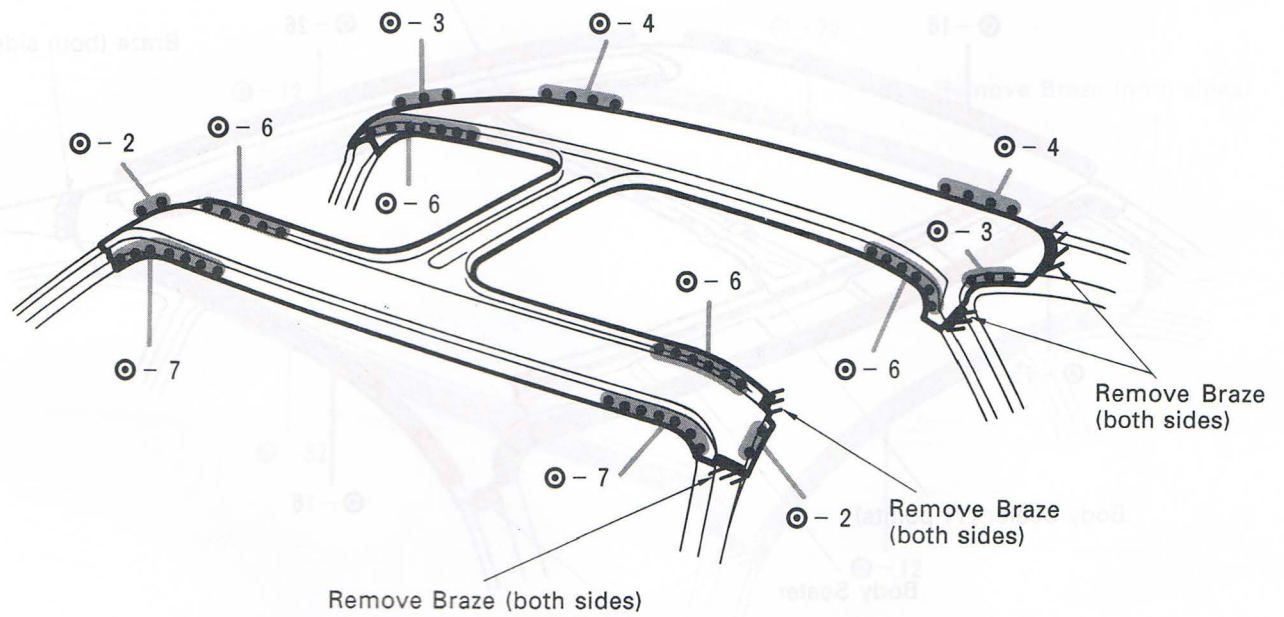
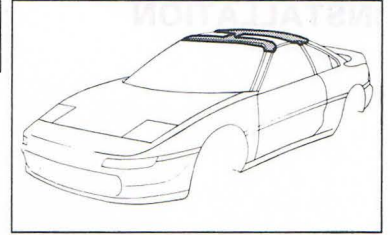
*HINT: Apply just enough sealer for the new parts to make contact.*

2. Braze the front body pillar and quarter panel connection.

*HINT: Distortion occurs easily so protect the surrounding area of the brazing with a wet rag.*

## ROOF PANEL (ASSY): T-Bar Roof

### REMOVAL

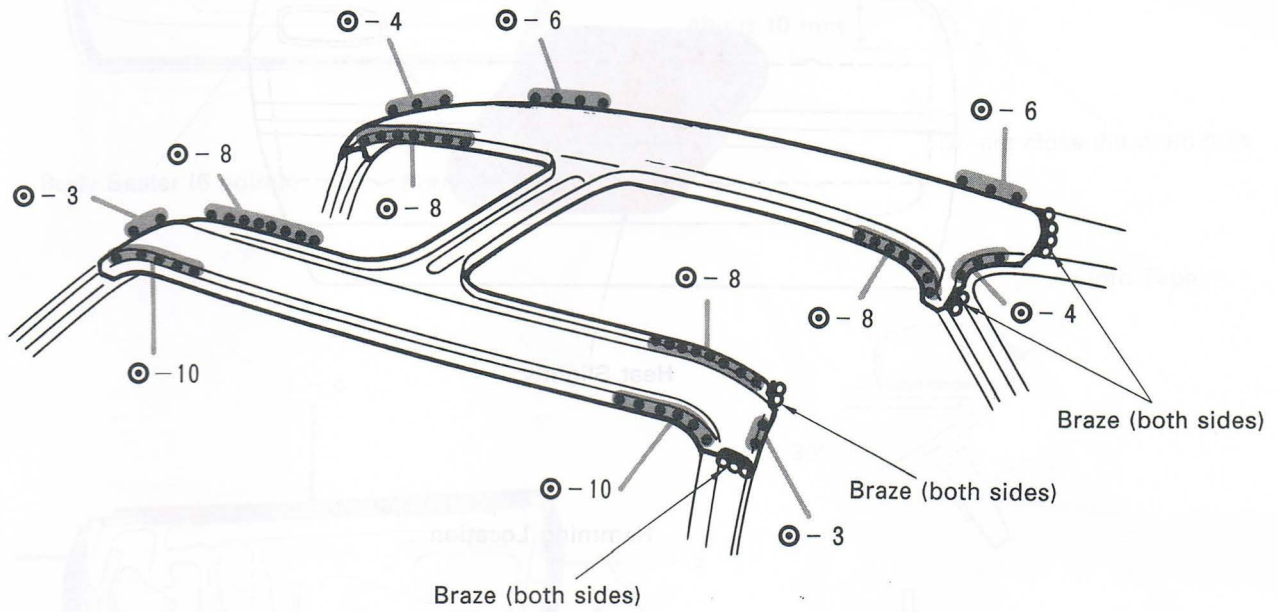


1. Heat the brazed area of the front body pillar and quarter panel and scrape off the brazing with a wire brush.

**HINT:** Be careful not to overheat the pillar.



INSTALLATION

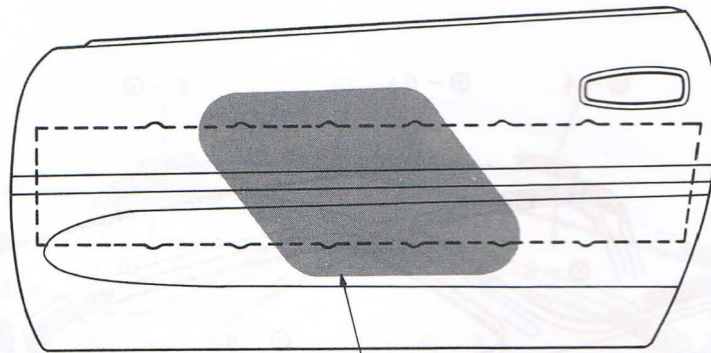
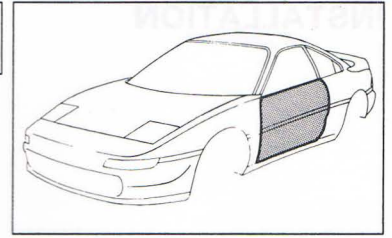


1. Braze the front body pillar and quarter panel connection.

*HINT: Distortion occurs easily so protect the surrounding area of the brazing with a wet rag.*

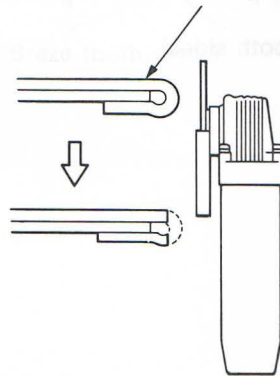
# FRONT DOOR OUTER PANEL (ASSY)

## REMOVAL



Heat Slightly

Hemming Location

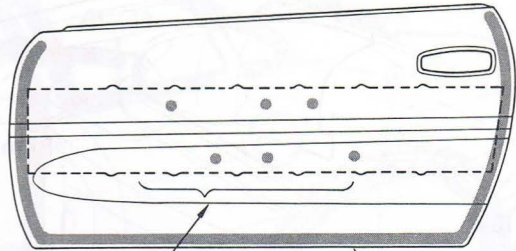


Disc Sander

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

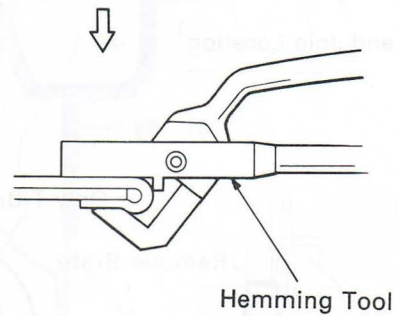
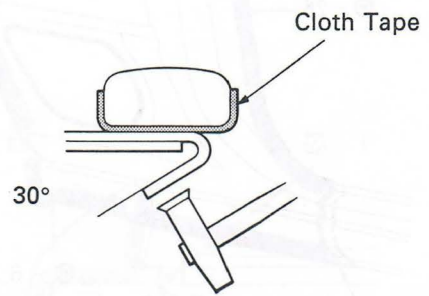
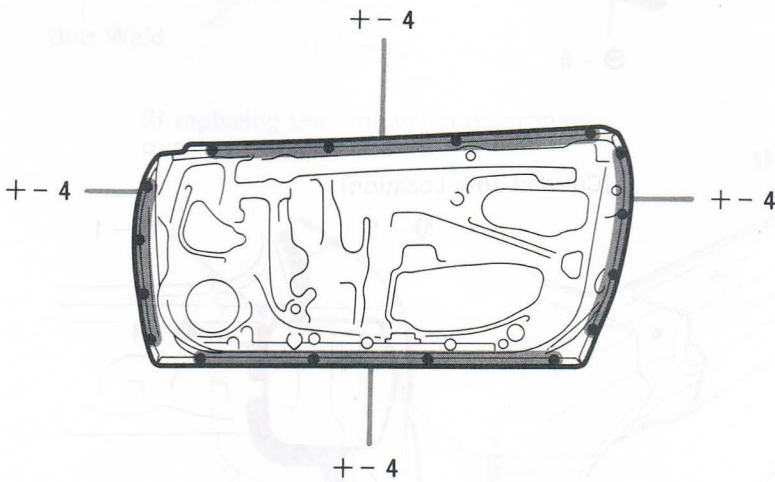
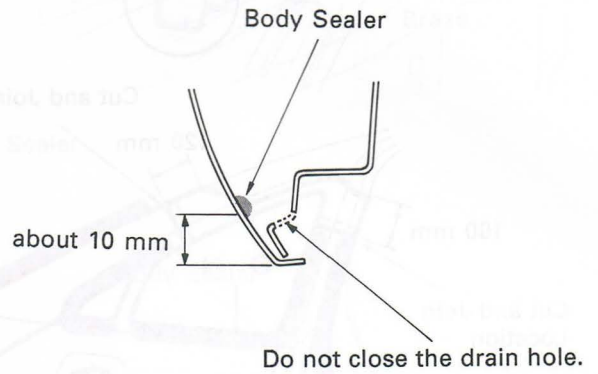


INSTALLATION



Body Sealer (6 points)

Body Sealer



mm	in.
10	0.39

1. Before temporarily installing the new panel, coat the back side with body sealer.

**HINT:**

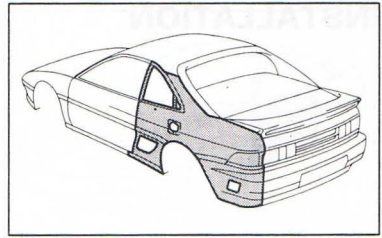
1) Coat evenly about 10 mm (0.39 in.) from the flange and 3 mm (0.12 in.) in diameter.

2. For the flange hem, bend about 30° with a hammer and dolly. Then use a hemming tool.

**HINT:**

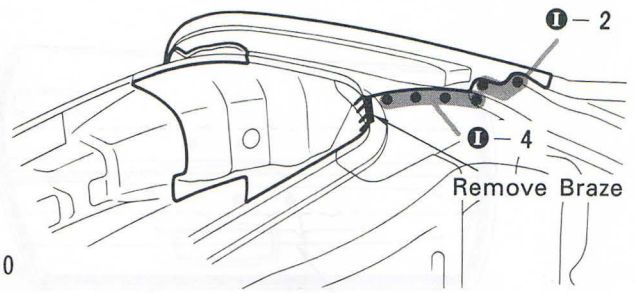
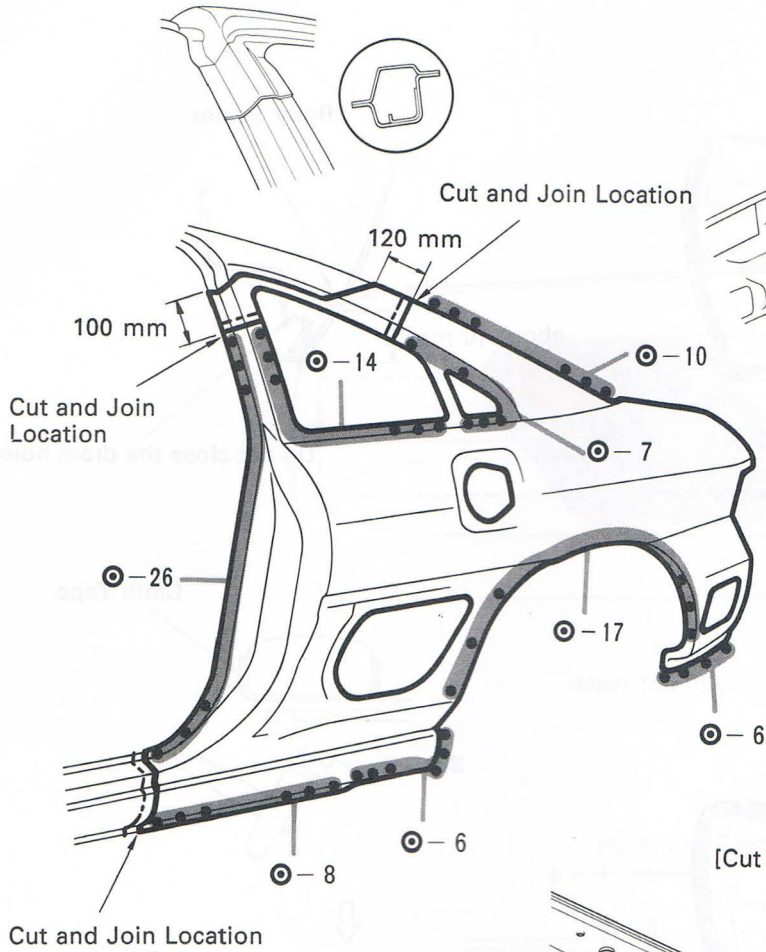
- 1) Perform hemming in three steps, being careful not to warp the panel.
- 2) If a hemming tool cannot be used, hem with a hammer and dolly.
3. Install the asphalt sheet. (See page AP-3.)

# QUARTER PANEL (CUT)

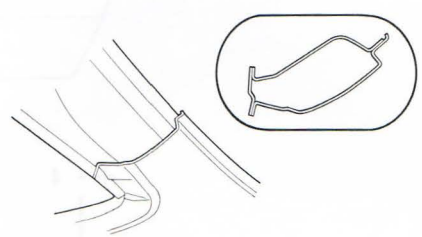


## REMOVAL

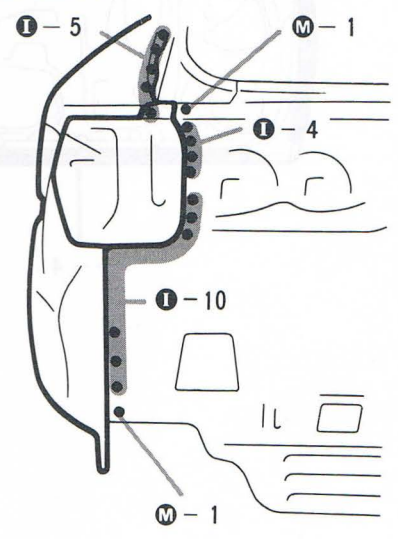
[Cut and Join Location]



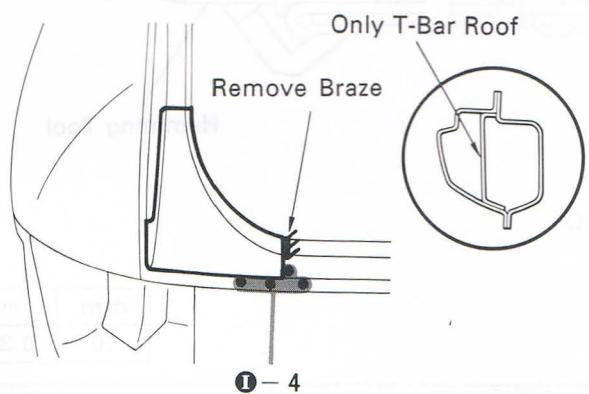
[Cut and Join Location]



[Cut and Join Location]



Cut and Join Location



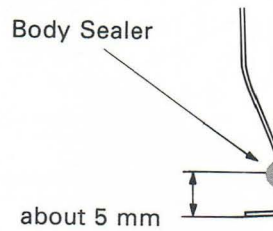
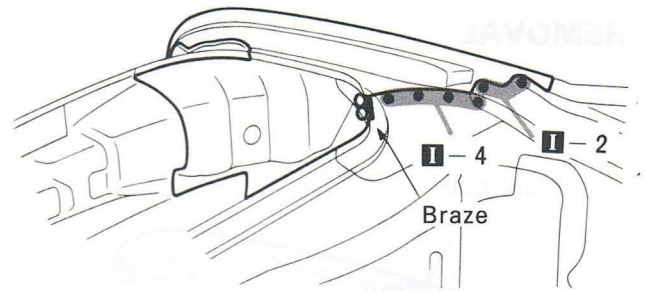
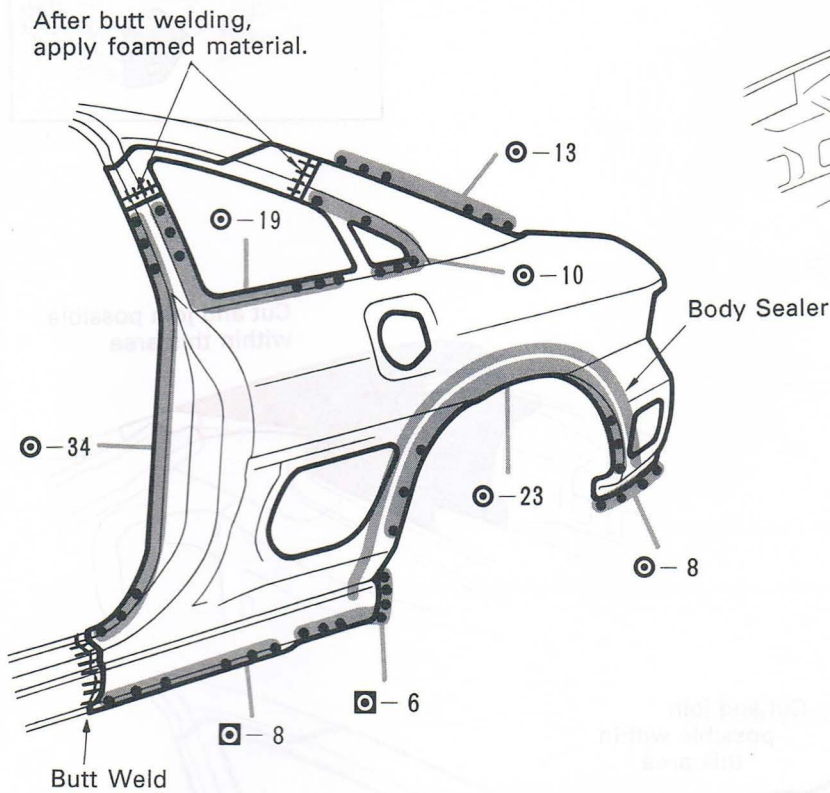
[If replacing the luggage compartment opening trough]

mm	in.
100	3.94
120	4.72

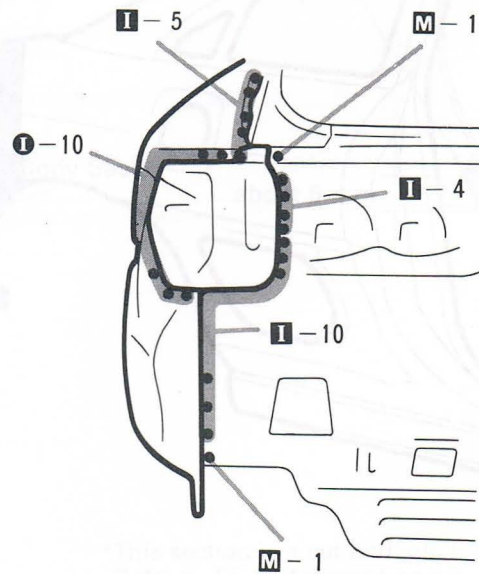
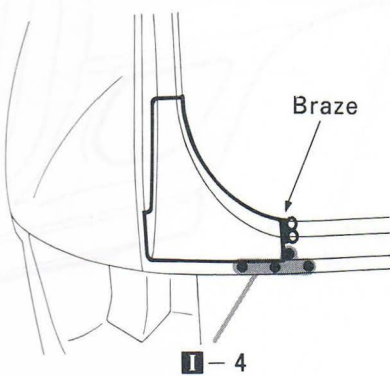
1. Cut and join the parts at the locations shown above.



INSTALLATION



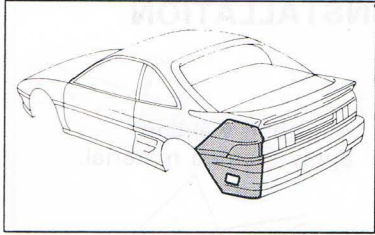
[If replacing the luggage compartment opening trough]



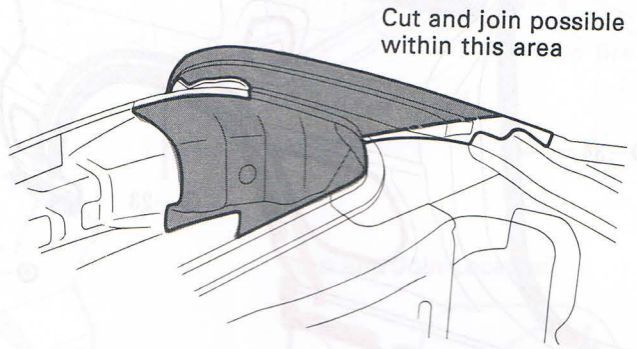
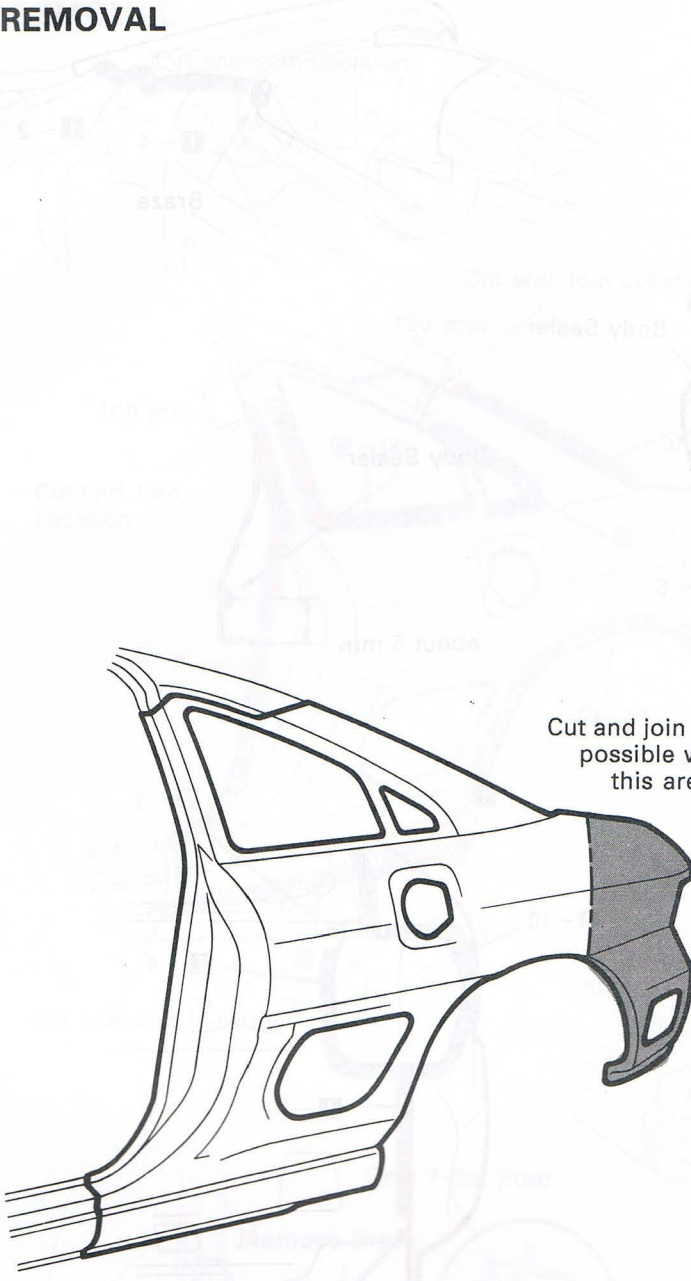
mm	in.
5	0.20

- Before temporarily installing the new parts, apply body sealer to the wheel arch.
  - Temporarily install the new parts and check the fit of the front door, luggage compartment door and rear combination light.
  - Apply foamed material to the pillar section.
- 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.

# QUARTER PANEL (CUT-P)



## REMOVAL



Cut and join possible within this area

Cut and join possible within this area

\*This section is a cut and join location only. Refer to RE-30 for weld points.

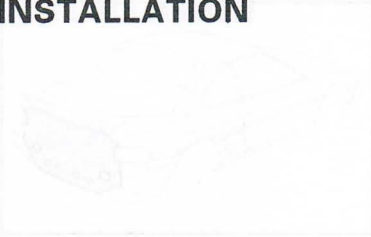
mm	in
0.0	0.0

1. Cut and join the parts at the location shown above.

2. Apply body sealer about 8 mm (0.31 in) from the flange, avoiding any coating.
3. Apply sealer evenly, about 3 - 4 mm (0.12 - 0.16 in) in diameter.

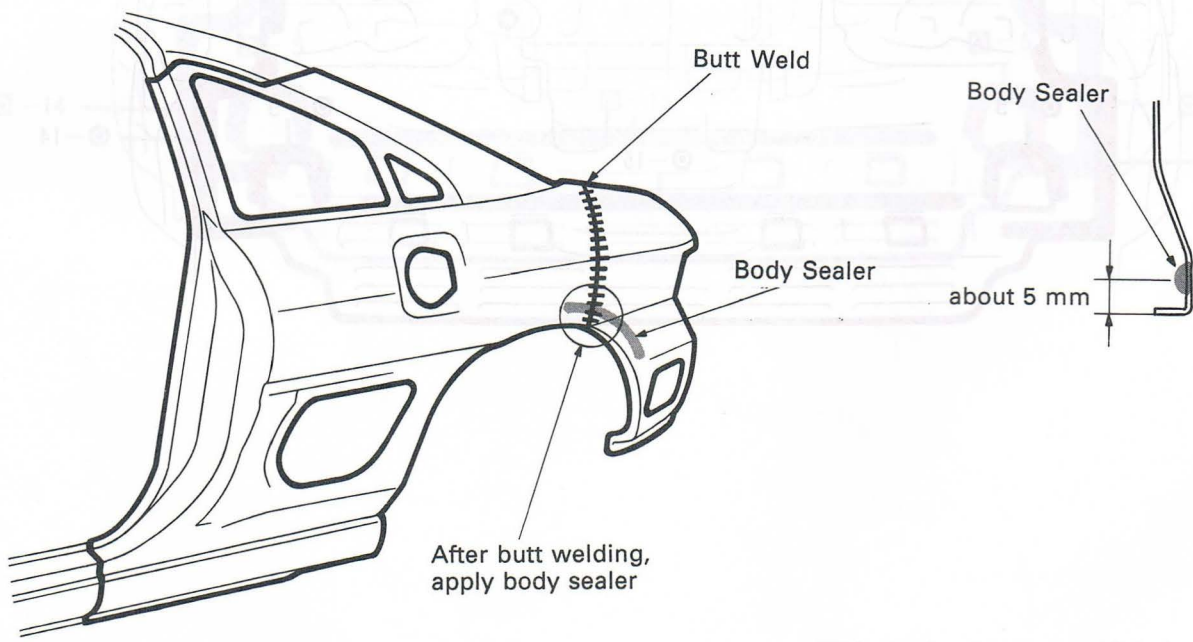
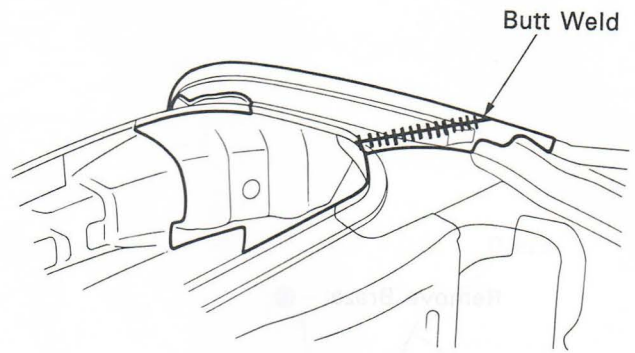


INSTALLATION



REAR LOWER BACK PANEL (ASSY)

REMOVAL



\*This section is a cut and join location only. Refer to RE-31 for weld points.

mm	in.
5	0.20

1. Before cutting the overlap areas, check the fit of the luggage compartment door and rear combination light.
2. Before welding, apply body sealer to the quarter panel as shown.

HINT:

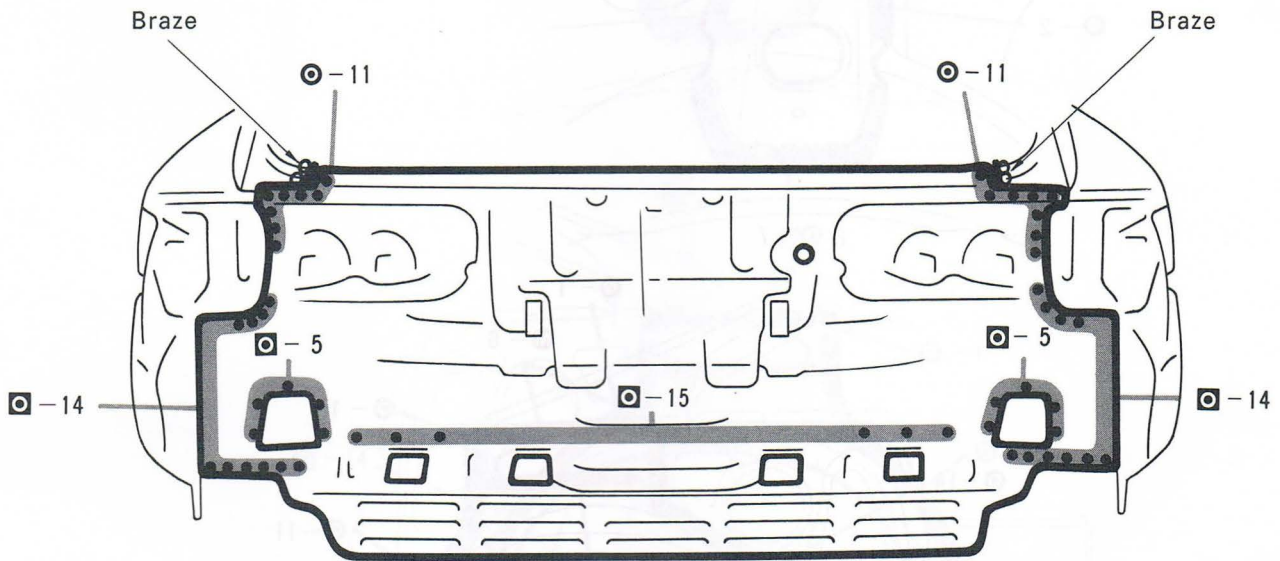
- 1) Do not apply body sealer to the weld seams before welding as the sealer will melt, resulting in a bad seal and a bad weld.

- 2) For other sealing points, refer to section AR.
  3. Surface finish the weld seam from the inside also.
- HINT: Be careful not to grind off too much weld as it will result in loss of durability.*





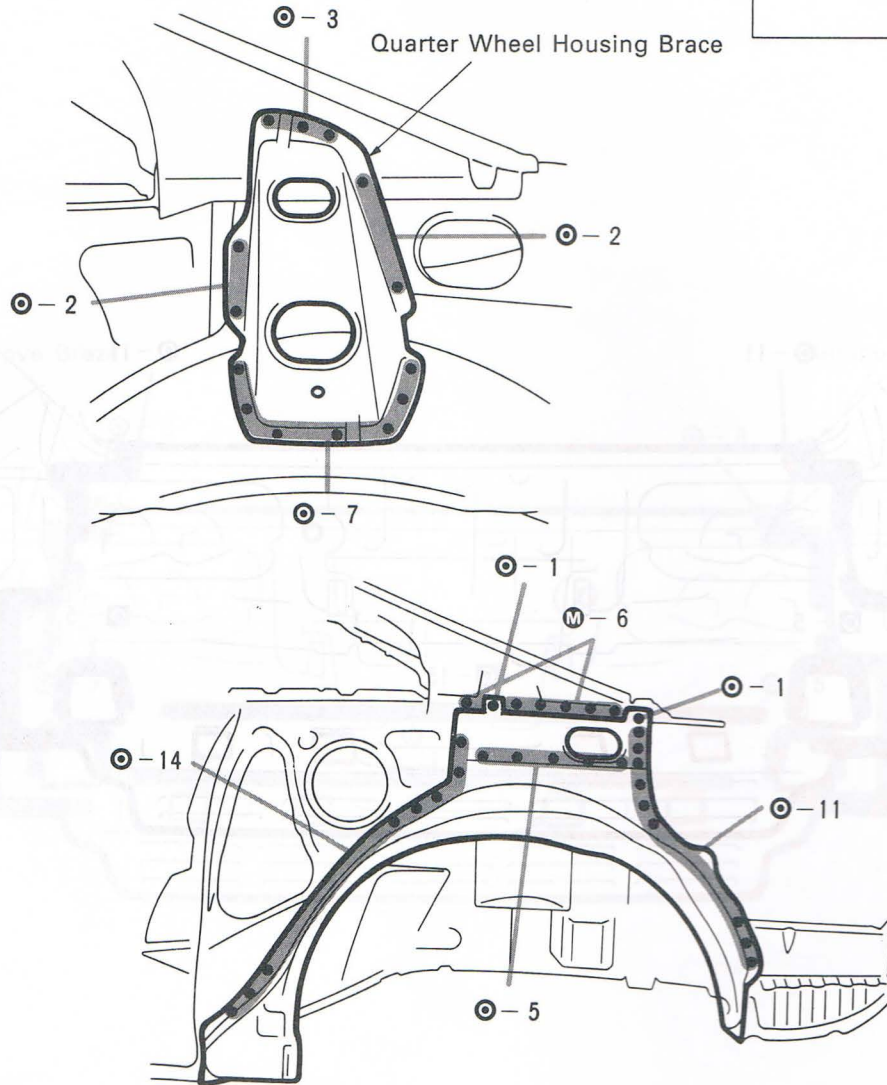
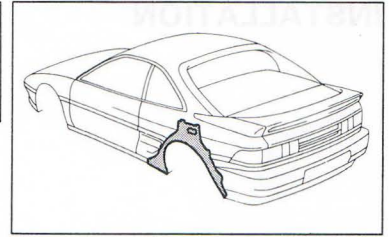
INSTALLATION



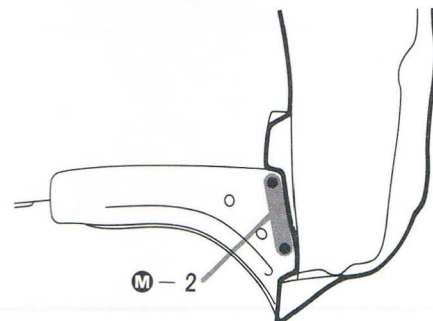
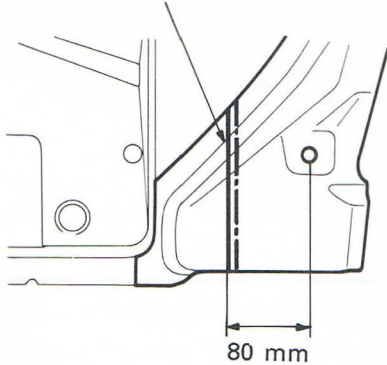
1. Temporarily install the new parts and check the fit of the luggage compartment door and rear combination light.

# QUARTER WHEEL HOUSING OUTER PANEL (CUT)

REMOVAL (With the quarter panel removed.)



Cut and Join Location

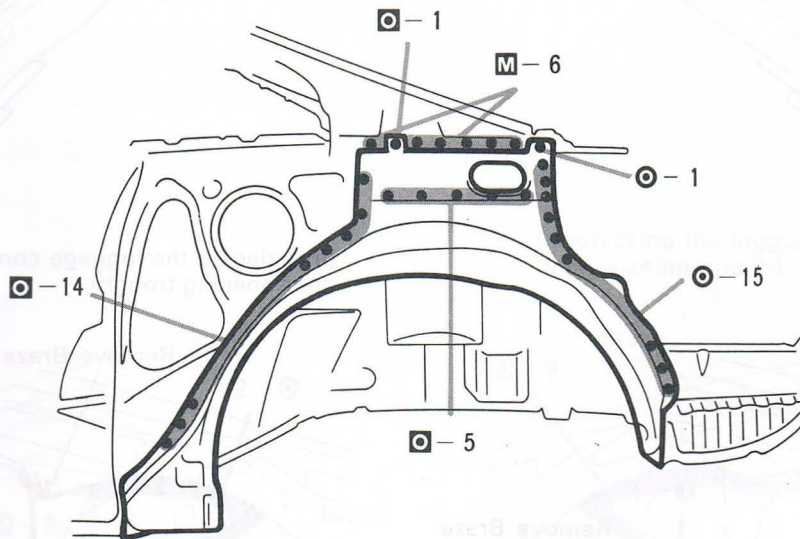
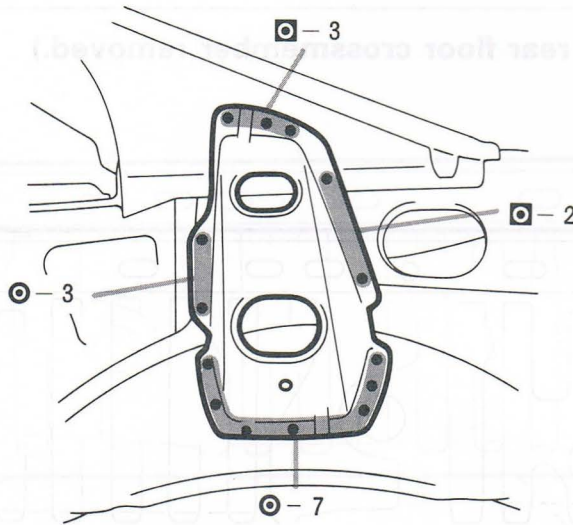


mm	in.
80	3.15

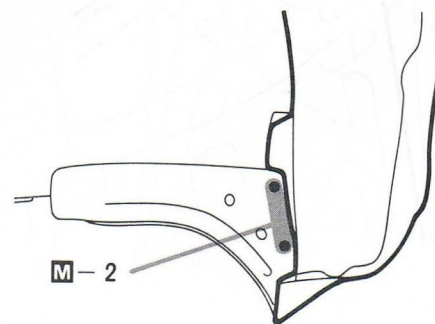
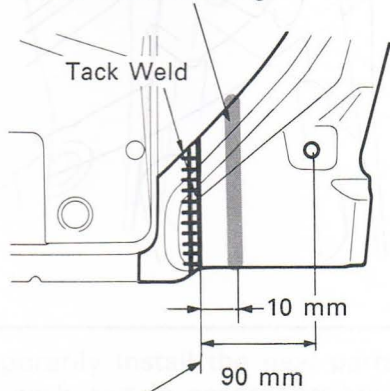
1. Cut and join the parts as the locations show above.
2. After removing the quarter wheel housing brace, remove the quarter wheel housing outer panel.



INSTALLATION



Apply body sealer to the inside of the wheel housing



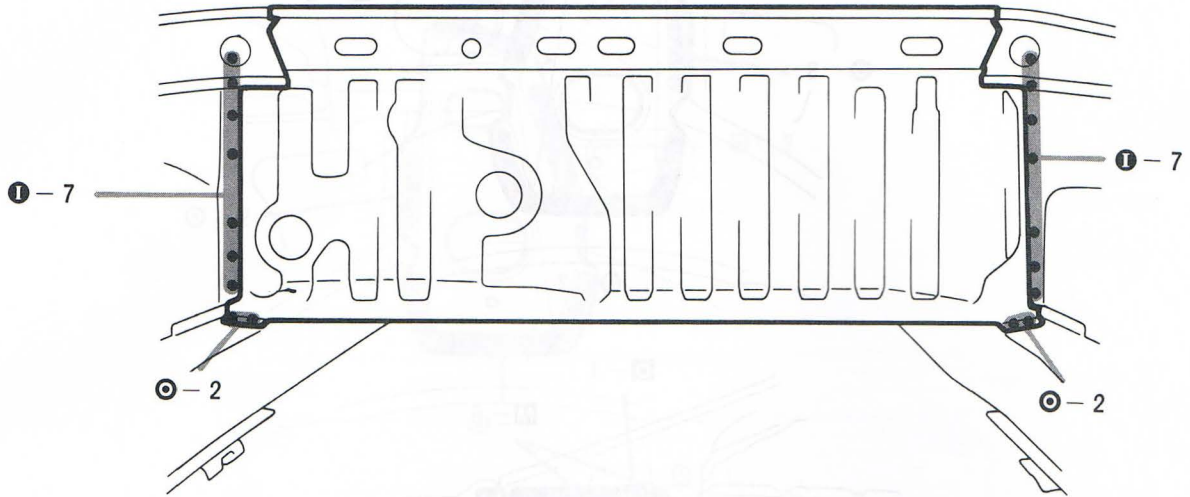
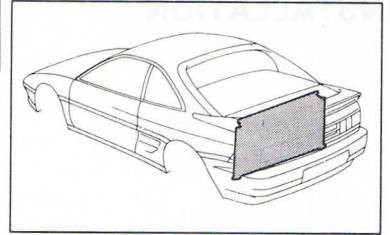
New Parts Cut Location

mm	in.
10	0.39
90	3.54

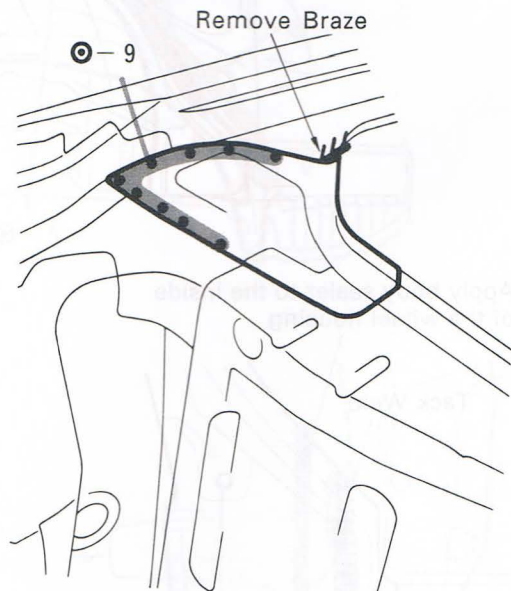
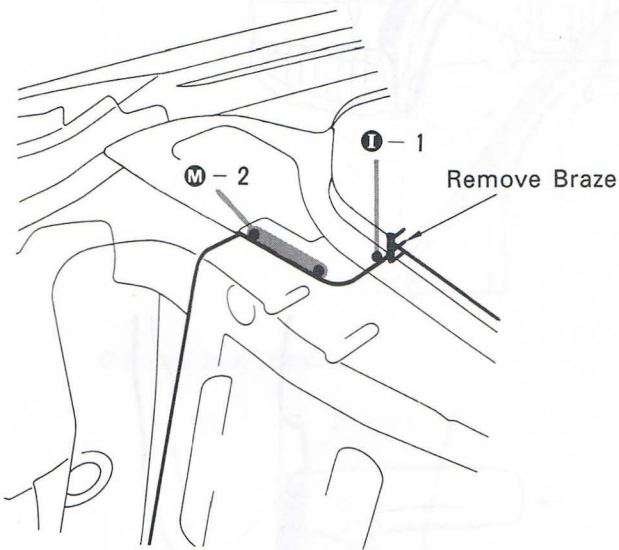
1. Before welding the new parts, temporarily install the quarter panel and check the fit.
2. Overlap the cut and join parts and perform tack welding, then apply body sealer to the inside of the wheel housing.

# REAR FLOOR PARTITION PANEL (ASSY)

REMOVAL (With the rear floor crossmember removed.)

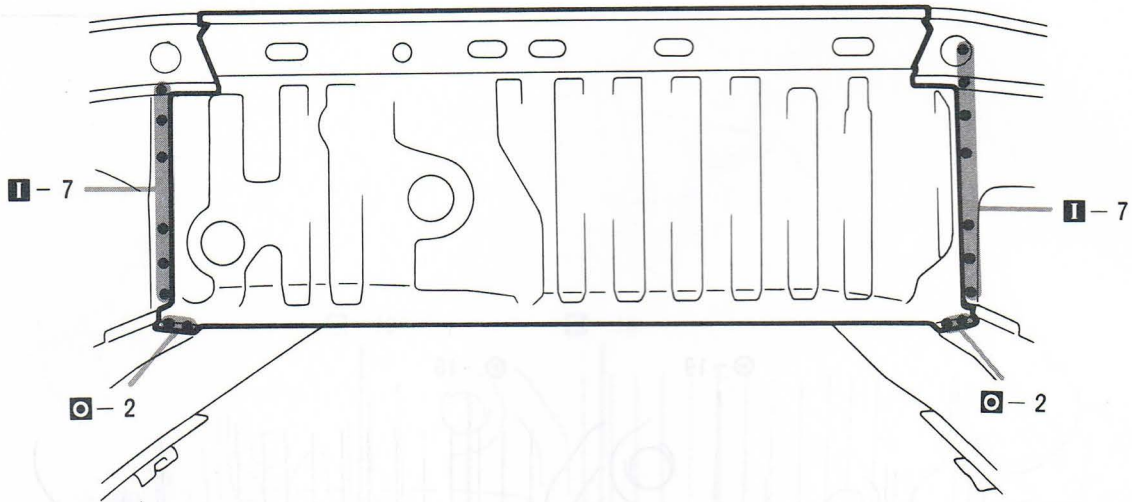


[If replacing the luggage compartment door opening trough]

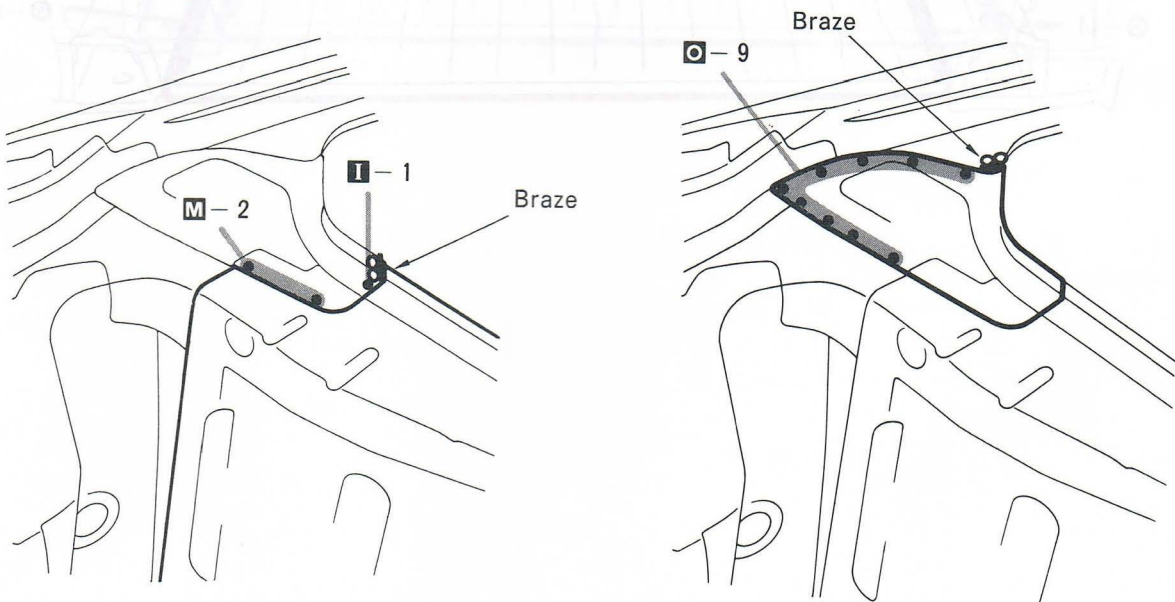




INSTALLATION



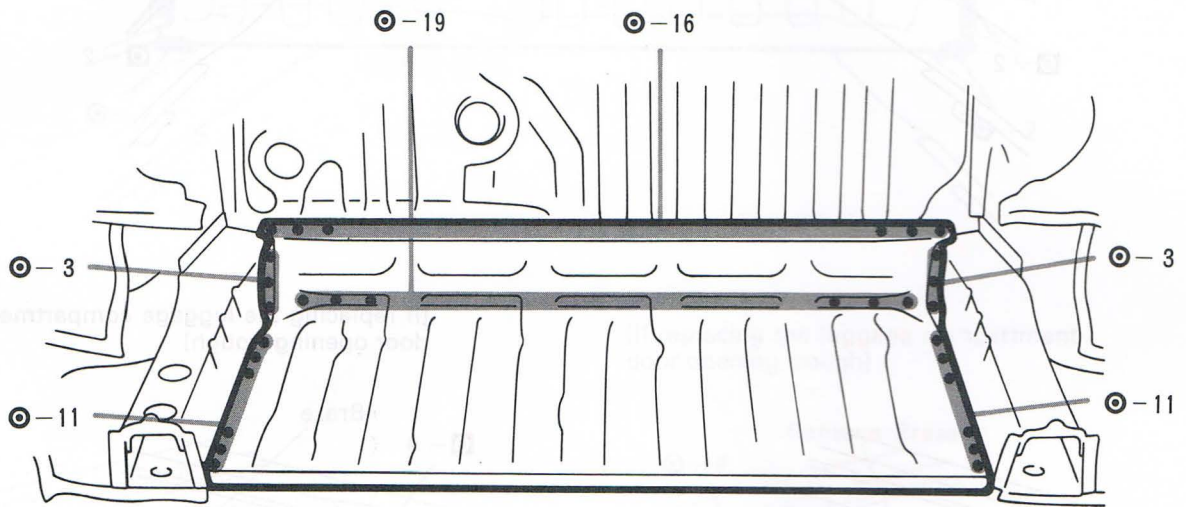
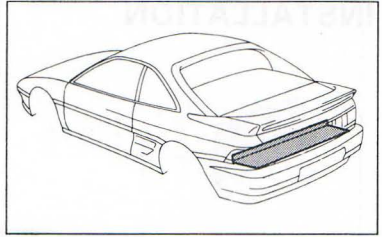
[If replacing the luggage compartment door opening trough]



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

**REAR FLOOR PAN (ASSY)**

**REMOVAL (With the body lower back panel removed.)**



Temporarily install the new parts and mark each part in accordance with the dimension diagram.

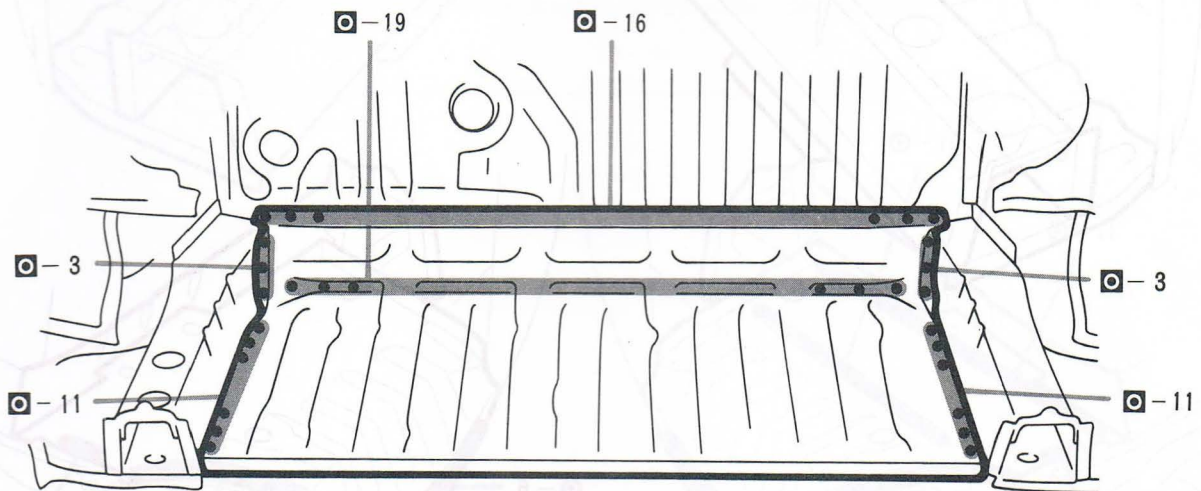


INSTALLATION



REAR FLOOR REAR SIDE MEMBER (ASSY)

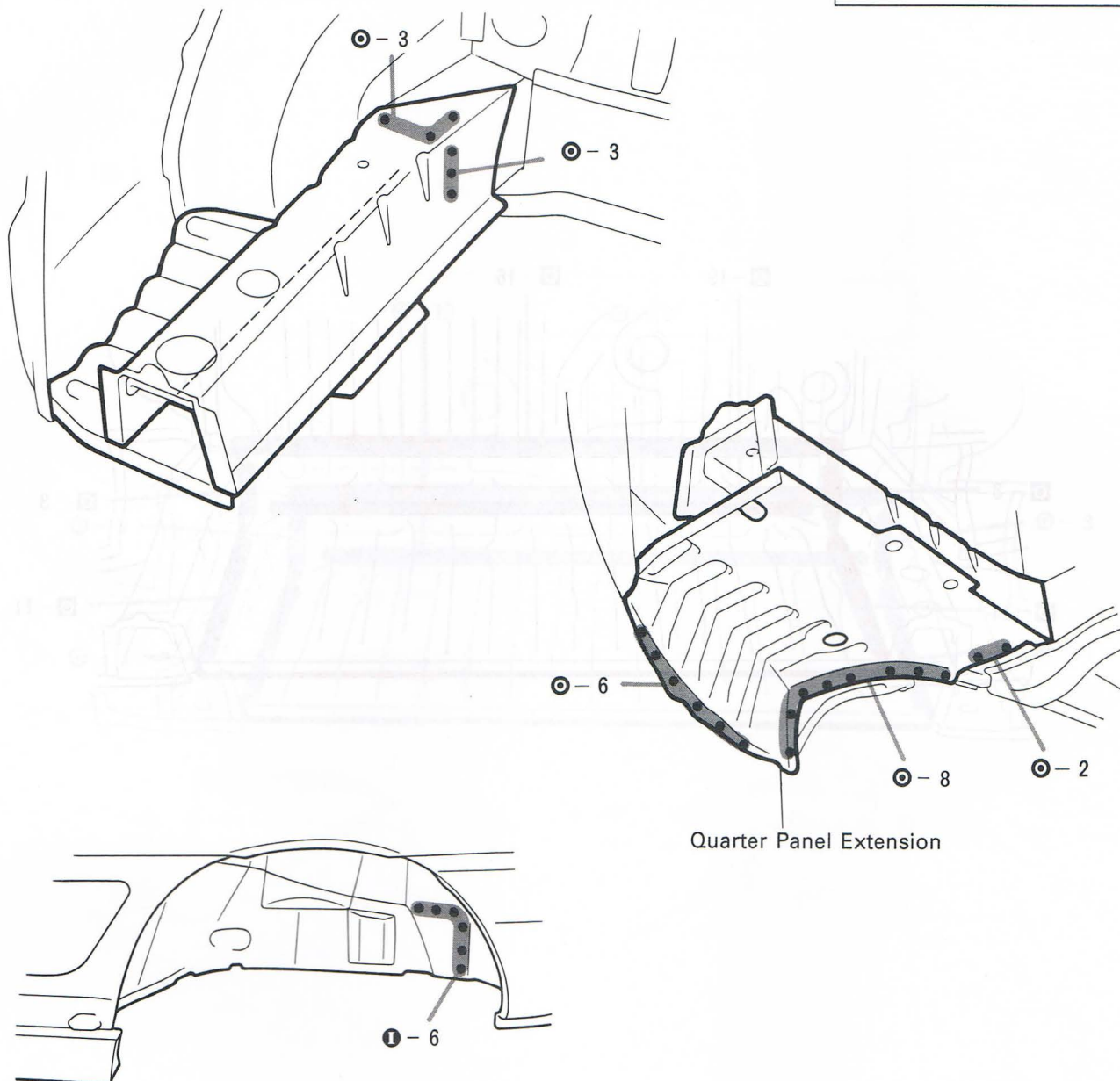
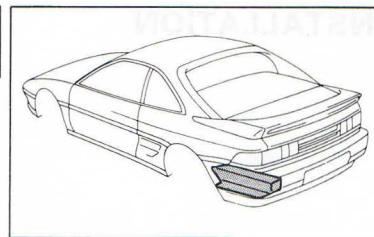
REMOVAL (With the rear floor pan removed)



1. Before welding the new parts, temporarily install the body lower back panel and check the fit.

## REAR FLOOR REAR SIDE MEMBER (ASSY)

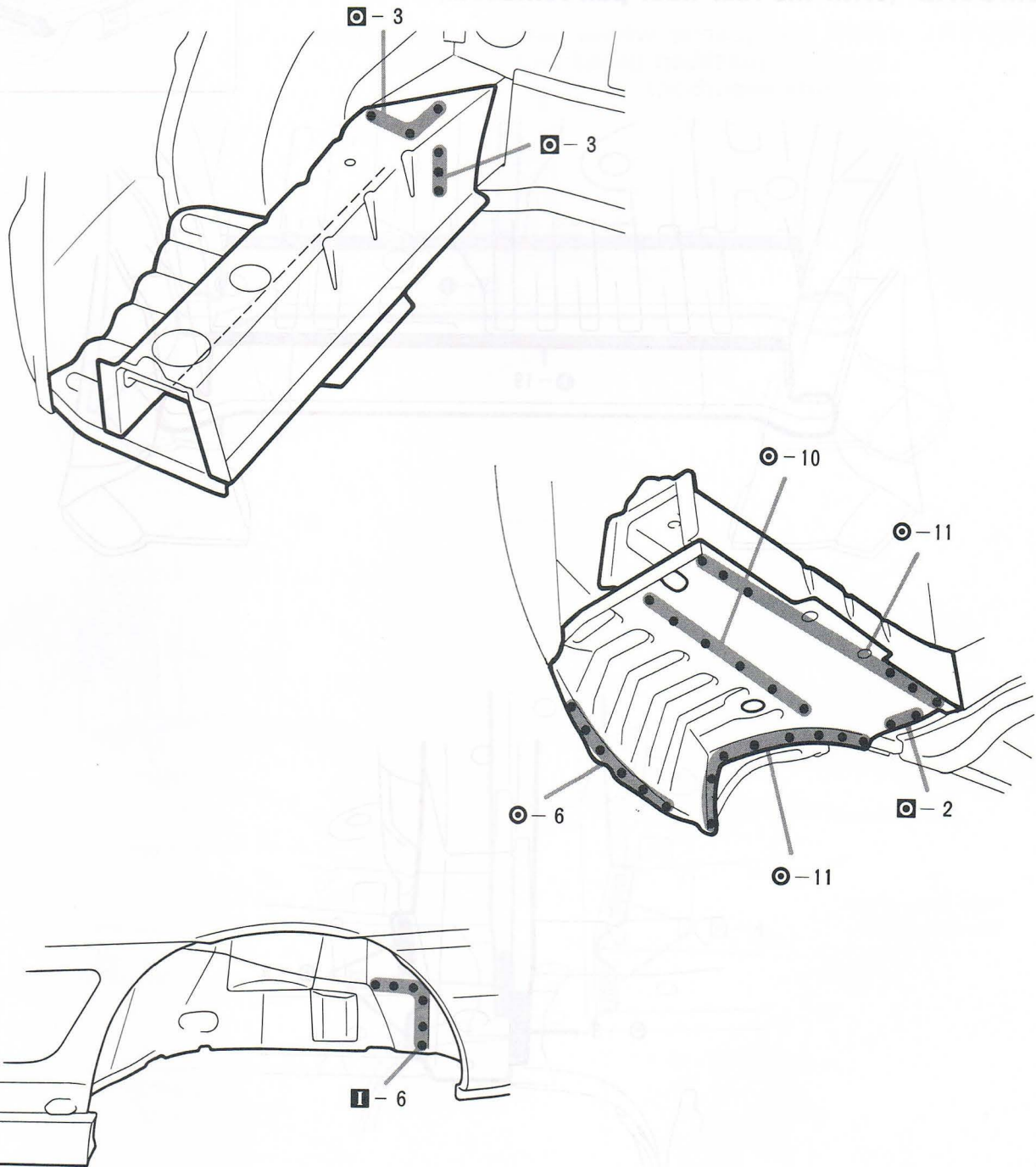
REMOVAL (With the rear floor pan removed.)



1. Change quarter panel extension at the same time.

Before welding the new parts temporarily install the body lower panel and check the fit.

INSTALLATION

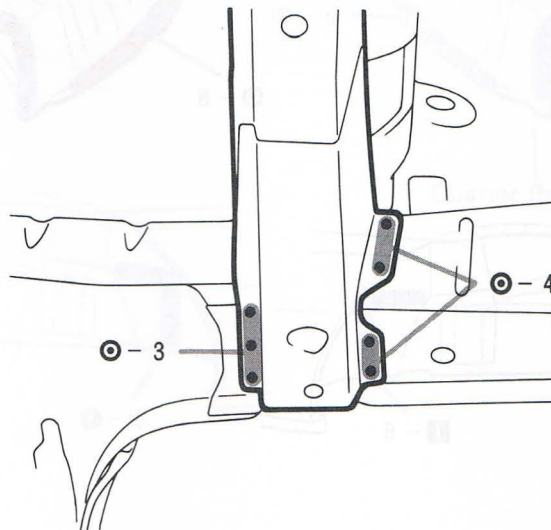
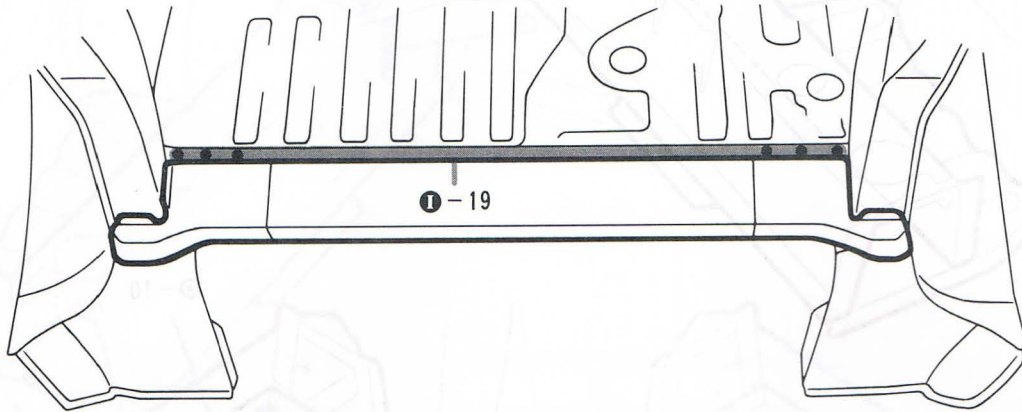
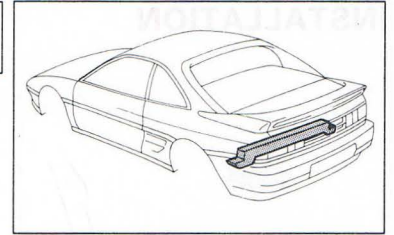


1. Temporarily install the new parts and measure each part in accordance with the body dimension diagram.



# REAR FLOOR CROSSMEMBER (ASSY)

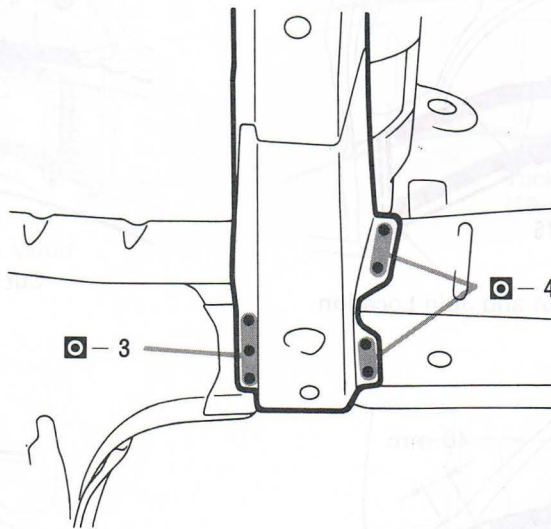
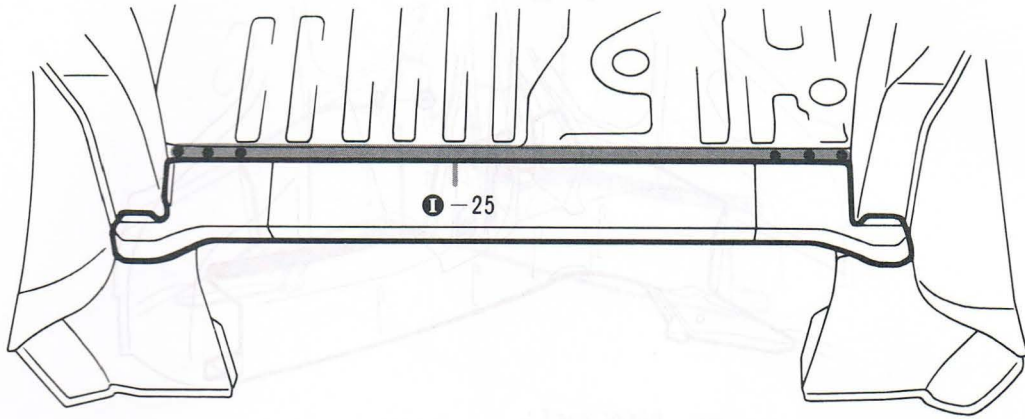
REMOVAL (With the rear floor pan removed.)



Check that the assembly is in accordance with the dimension diagram.

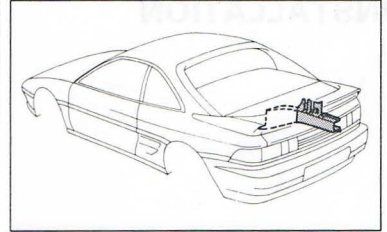
Temporarily install the new parts and measure the dimensions in accordance with the body dimension diagram.

**INSTALLATION**

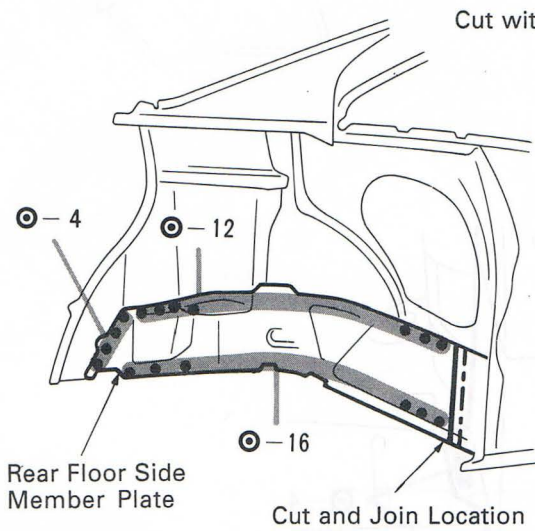
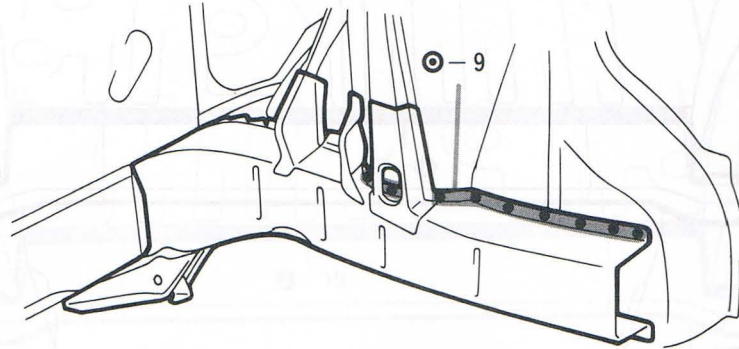


1. Temporarily install the new parts and measure each part in accordance with the body dimension diagram.

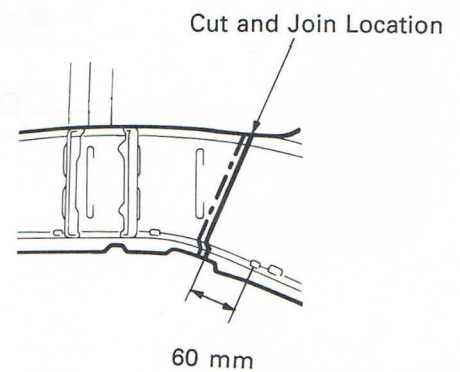
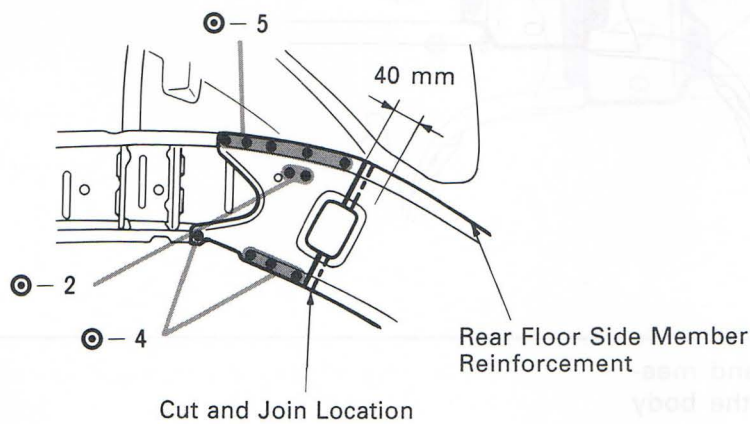
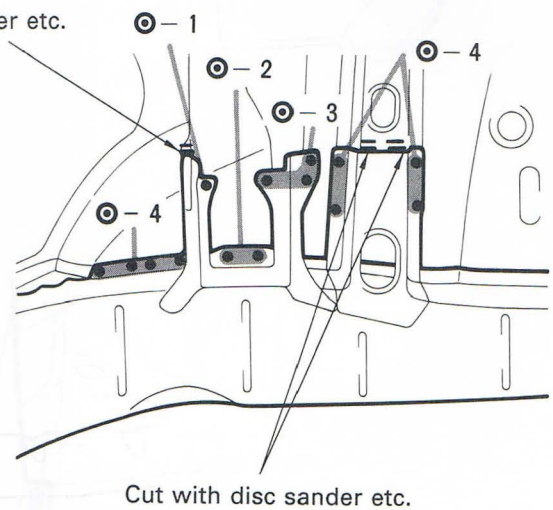
**REAR FLOOR SIDE MEMBER (CUT):  
Right Hand**



**REMOVAL** (With the quarter wheel housing outer panel, rear floor partition panel and rear floor rear side member.)



Cut with disc sander etc.

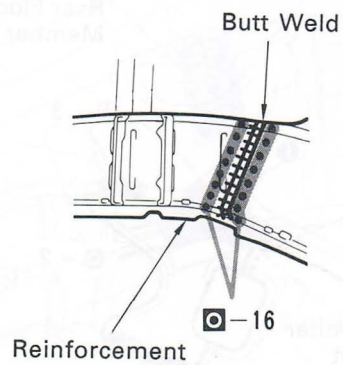
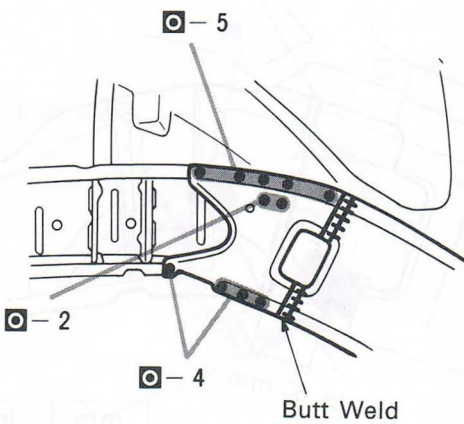
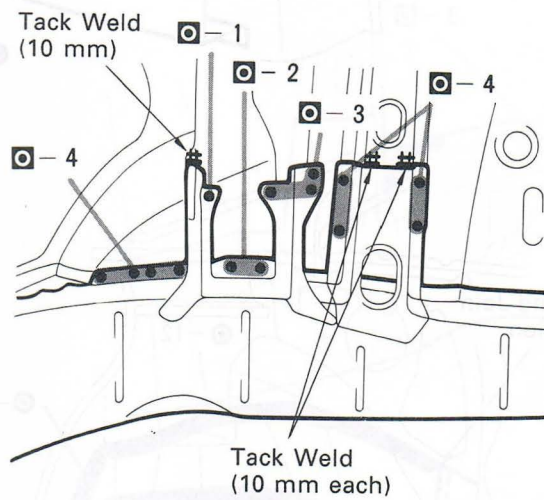
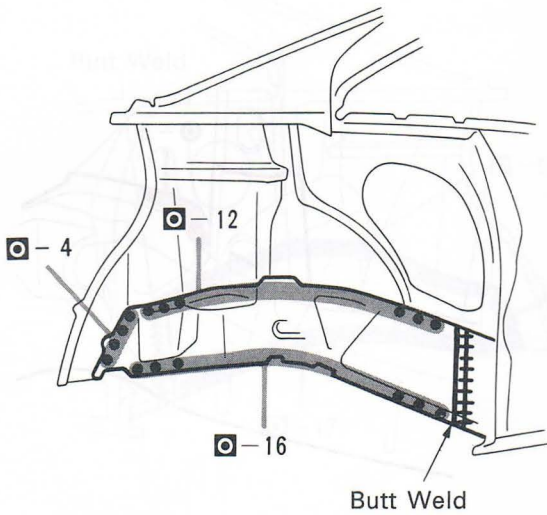
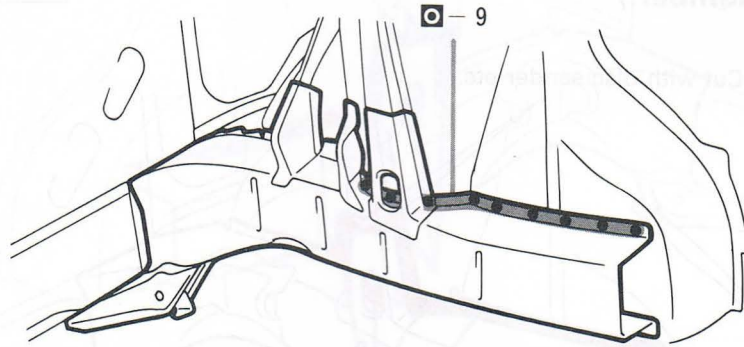
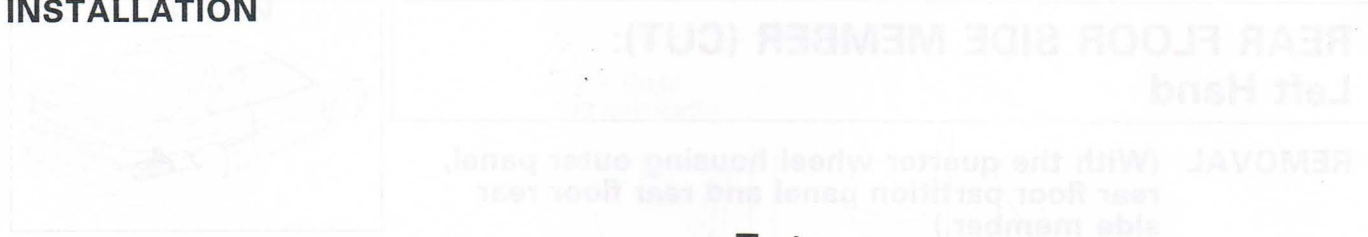


mm	in.
40	1.57
60	2.36

1. After cutting the rear floor side member plate and rear floor side member reinforcement front, cut and join the parts at the location shown above.



INSTALLATION

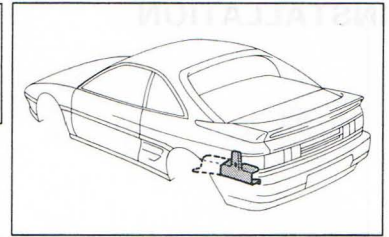


mm	in.
1.87	10
5.08	20

mm	in.
10	0.39

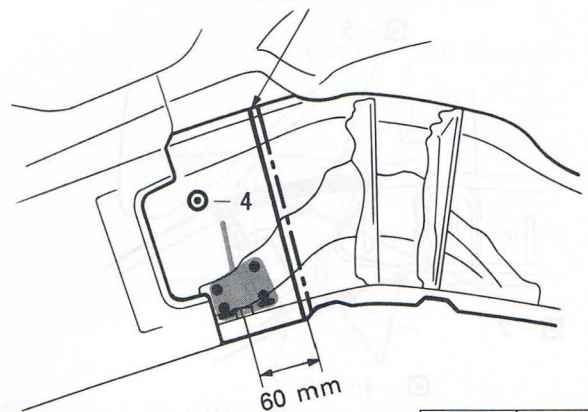
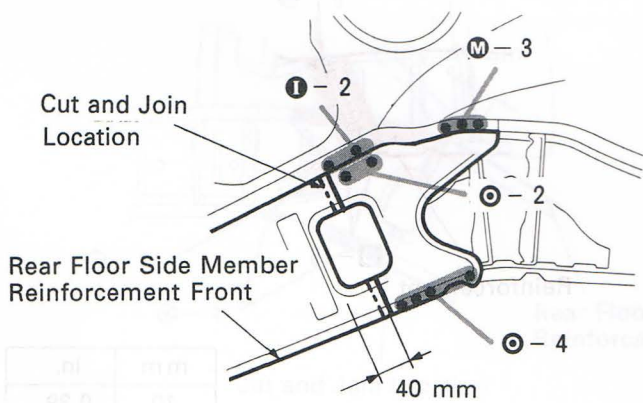
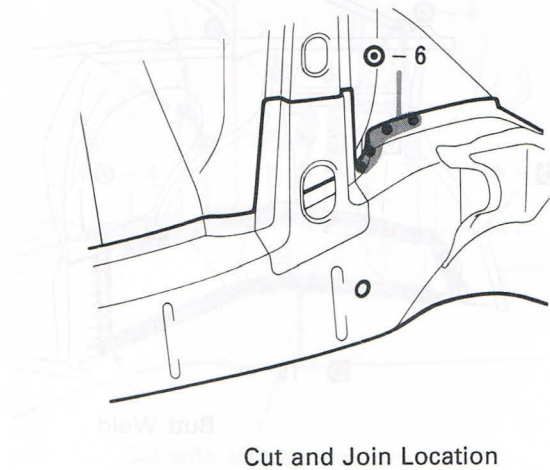
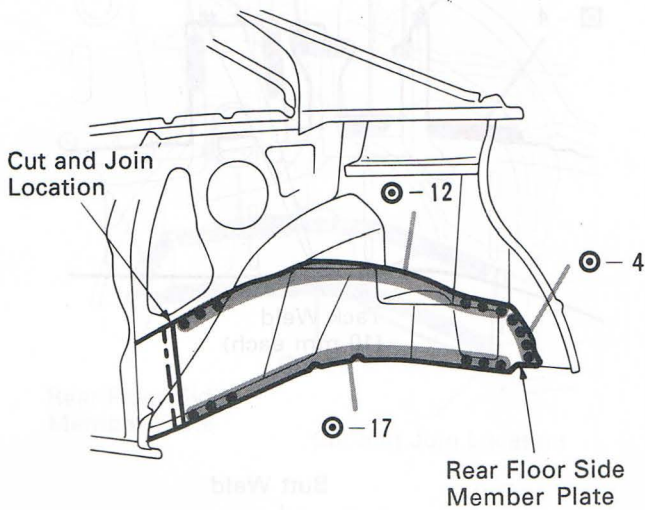
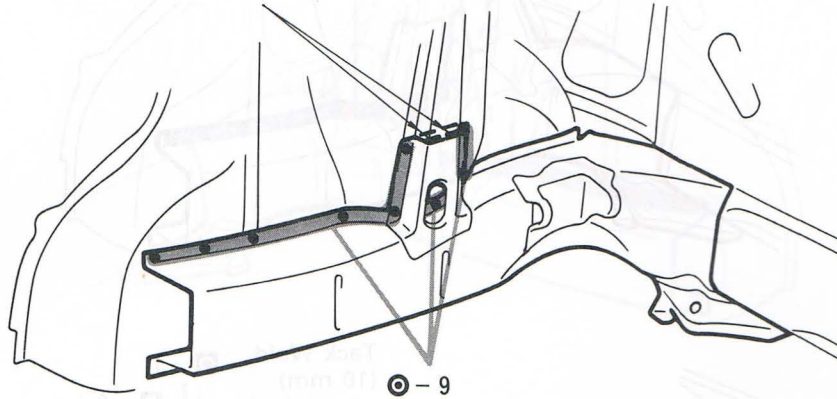
1. Temporarily install the new parts and measure each part in accordance with the body dimension diagram.
2. Weld reinforcing material to the inside of the cut and join location.

**REAR FLOOR SIDE MEMBER (CUT):  
Left Hand**



**REMOVAL** (With the quarter wheel housing outer panel, rear floor partition panel and rear floor rear side member.)

Cut with disc sander etc.

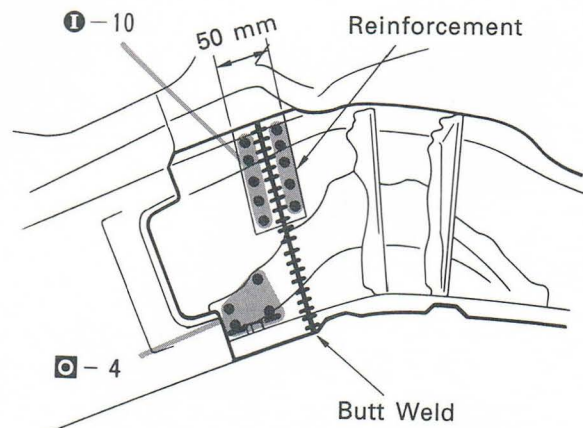
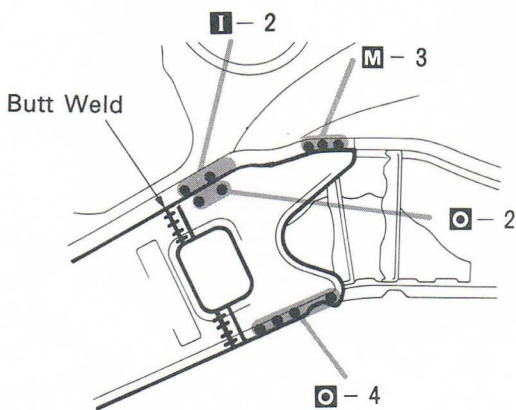
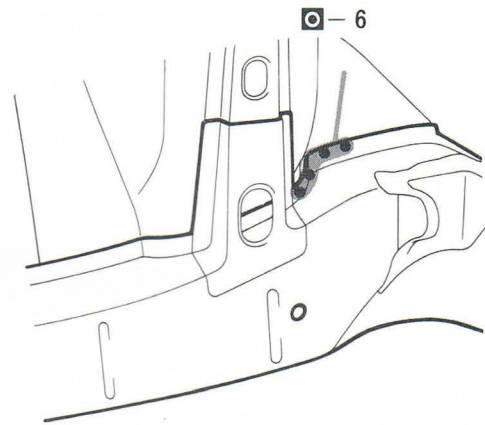
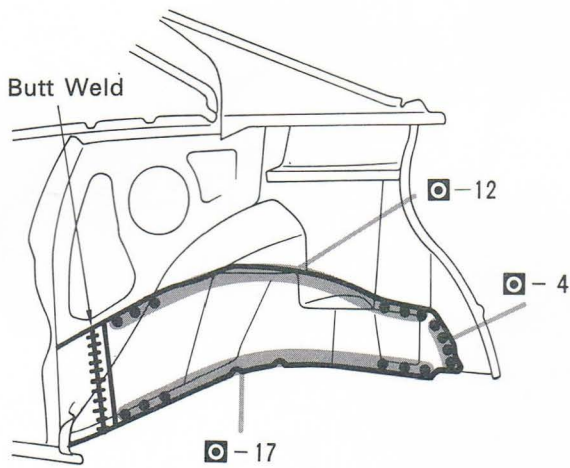
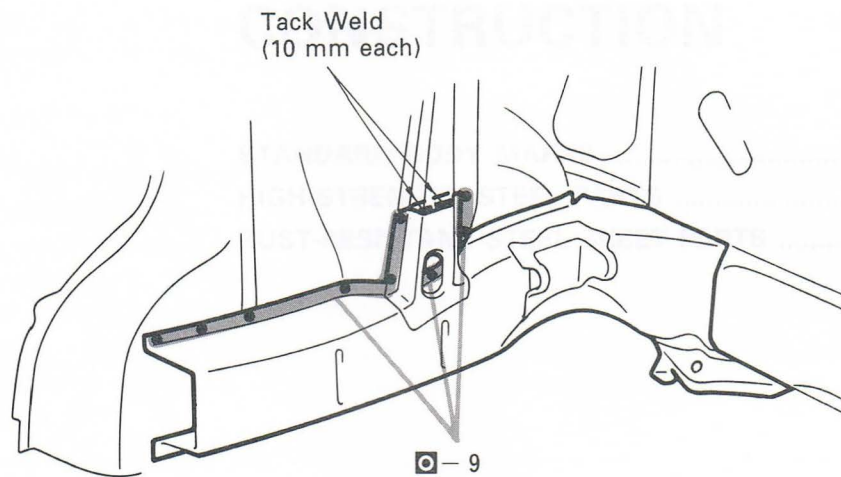


mm	in.
40	1.57
60	2.36

1. After cutting the rear floor side member plate and rear floor side member reinforcement front, cut and join the parts at the location shown above.
2. Remove the rear floor side member reinforcement inner remaining on the body.



INSTALLATION



mm	in.
10	0.39
50	1.97

1. Temporarily install the new parts and measure each part in accordance with the body dimension diagram.
2. Weld reinforcing material to the inside of the cut and join location.





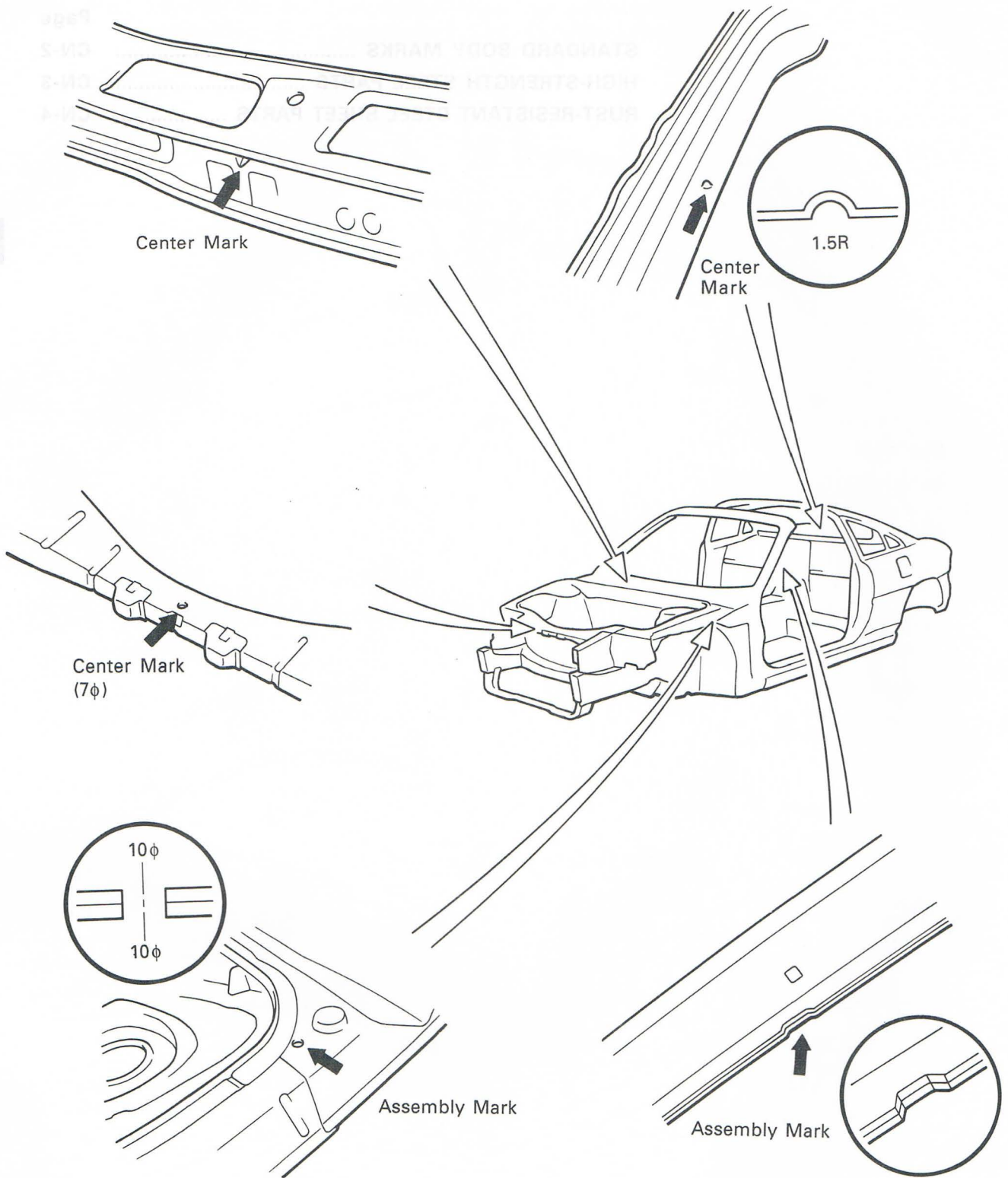
# BODY PANEL CONSTRUCTION

	Page
STANDARD BODY MARKS .....	CN-2
HIGH-STRENGTH STEEL PARTS .....	CN-3
RUST-RESISTANT STEEL SHEET PARTS .....	CN-4

CN



# STANDARD BODY MARKS



mm	in.
1.5	0.059
7	0.28
10	0.39



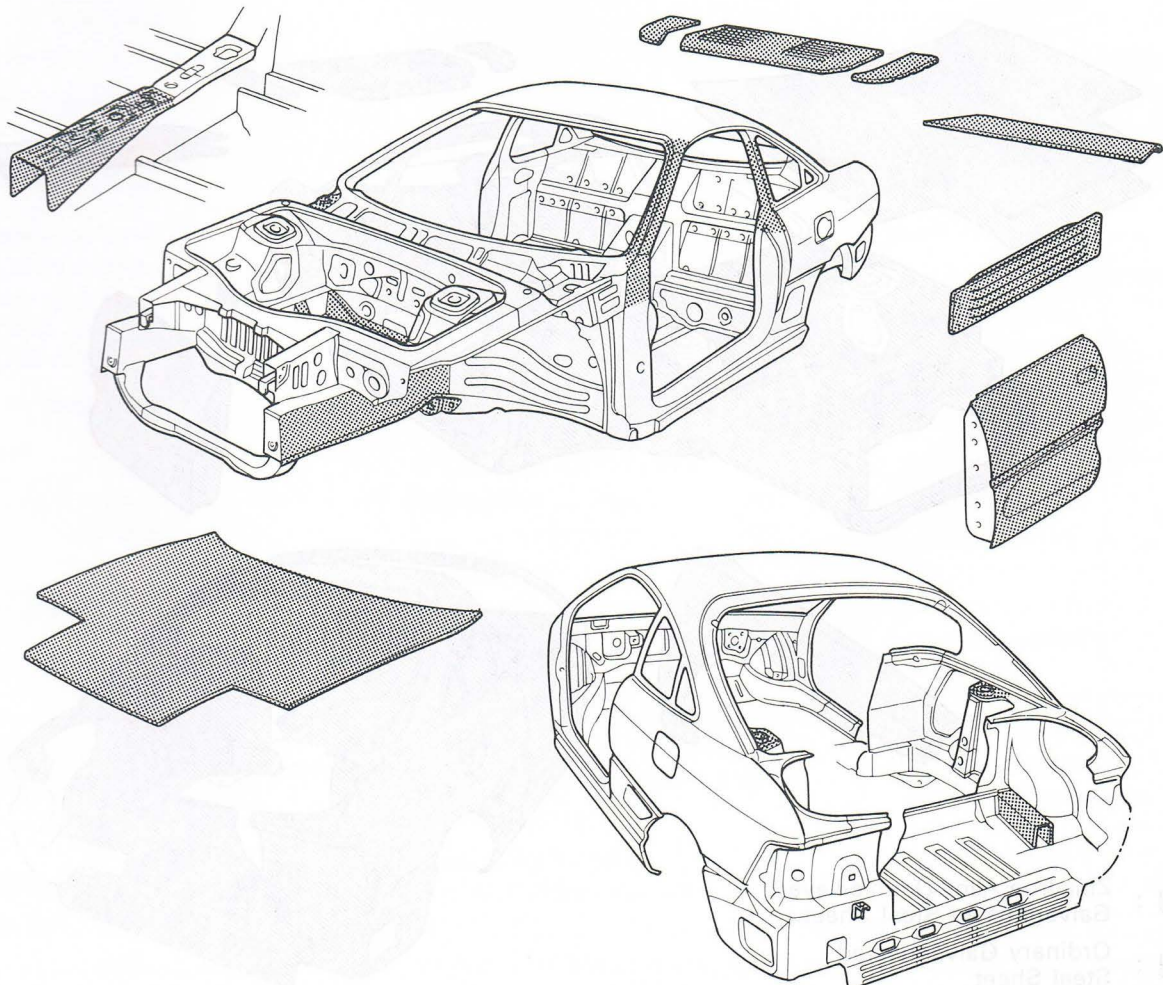
## HIGH-STRENGTH STEEL (HSS) PARTS

Generally, High-Strength Steel (HSS) is that which has an intensity value of at least  $35 \text{ kgf/mm}^2$  (343 MPa), and distinguished from mild steel.

The handling of HSS is the same as for mild steel, but the following should be observed.

1. **Panel Hammering:** Because HSS is thinner than mild steel, care should be taken to avoid warping during hammering operations.
2. **Removing Spot Welds:** Because HSS is tougher than mild steel, damage will occur more easily to a regular drill. Therefore, an HSS Spot Cutter is recommended. Also, use a high-torque drill at low speed, and supply grinding oil to the drill during use.
3. **Panel Welding:** Panel welding procedures for HSS are exactly the same as for mild steel. Plug welding should be done with MIG (Metal Inert Gas) welder. Do not gas weld or braze panels at areas other than specified.

### REFERENCE:

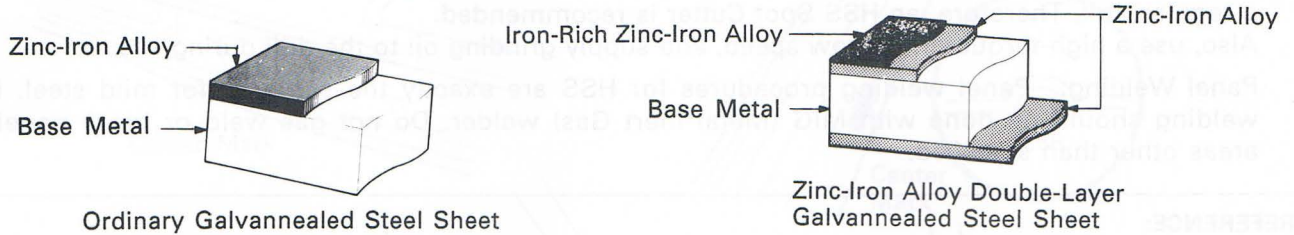




# RUST-RESISTANT STEEL SHEET PARTS

Rust-Resistant Steel Sheets have zinc, tin or aluminum etc, plating over the base metal surface in order to improve the corrosion resistance of the sheet metal. For the vehicle's body panels, galvanized steel sheet is widely used.

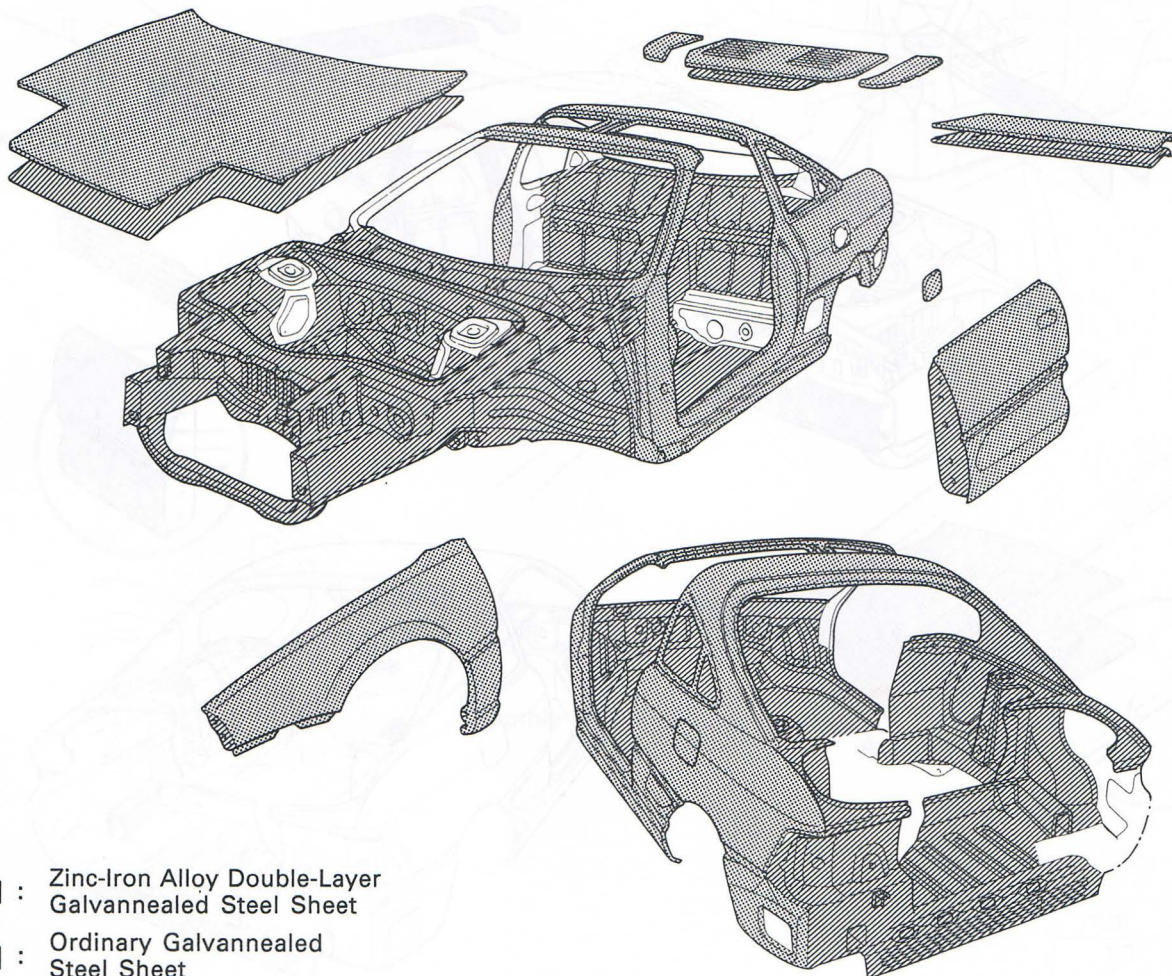
Body panel on TOYOTA models are made of two different galvanized steel sheet. The ordinary galvanized steel sheet has a zinc-iron alloy plating over the base metal surface. Zinc-iron alloy double-layer galvanized steel sheet has zinc-iron alloy plating on both the outside and the back surface, plus a further iron-rich zinc-iron alloy plating which good paint adherence. These two galvanized steel sheets are used selectively according to need.



The handling of Rust-Resistant Steel Sheet is the same as for ordinary steel sheet, but the following should be observed.

1. Panel welding: The paint as well as the zinc portion must be removed completely from the welding area to guarantee good welding integrity.
2. Anti-rust treatment: Since the zinc plating is lost after welding, anti-rust treatment of the welded area must be thoroughly performed (refer to section AR).

**REFERENCE:**



# PLASTIC BODY PARTS

Page  
**HANDLING PRECAUTIONS** ..... PP-2  
**LOCATION OF PLASTIC BODY PARTS** ..... PP-4

Code	Material	Temperature resistant limit (°F)	Notes
AAS	Acrylonitrile Butadiene Styrene	80	Avoid gasoline and organic or aromatic solvents. Remove grease with alcohol or gasoline only for short time in small amount. Quick wiping to remove grease.
ABS	Acrylonitrile Butadiene Styrene	80	Avoid gasoline and organic or aromatic solvents. Remove grease with alcohol or gasoline only for short time in small amount. Quick wiping to remove grease.
AEI	Acrylonitrile Ethylene Imines	80	Avoid gasoline and organic or aromatic solvents. Remove grease with alcohol or gasoline only for short time in small amount. Quick wiping to remove grease.
BMC	Bulk Molding Compound	150	Avoid gasoline and organic or aromatic solvents. Remove grease with alcohol or gasoline only for short time in small amount. Quick wiping to remove grease.
CAB	Cellulose Acetate	30	Avoid gasoline and organic or aromatic solvents. Remove grease with alcohol or gasoline only for short time in small amount. Quick wiping to remove grease.
EPDM	Ethylene Propylene Diene Monomer	100	Avoid gasoline and organic or aromatic solvents. Remove grease with alcohol or gasoline only for short time in small amount. Quick wiping to remove grease.
PA	Polyamide	50	Avoid battery acid. Harmless.
PBT	Polybutylene Terephthalate	150	Avoid gasoline and organic or aromatic solvents. Remove grease with alcohol or gasoline only for short time in small amount. Quick wiping to remove grease.
PC	Polycarbonate	150	Avoid gasoline, brake fluid, wax, removers and organic solvents. Avoid oil.
PE	Polyethylene	80	Avoid gasoline and organic solvents. Remove grease with alcohol or gasoline only for short time in small amount. Quick wiping to remove grease.
PET	Polyethylene Terephthalate	15	Avoid gasoline and organic solvents. Remove grease with alcohol or gasoline only for short time in small amount. Quick wiping to remove grease.

**PP**



## HANDLING PRECAUTIONS

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 chart.
3. When repairing metal body parts adjoining plastic body parts (by brazing, frame cutting, welding, painting, etc.), consideration must given to the property of the plastic.

Code	Material name	Heat* resistant temperature limit °C (°F)	Resistance to alcohol or gasoline	Notes
AAS	Acrylonitrile Acrylic Styrene	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e.g., quick wiping to remove grease).	Avoid gasoline and organic or aromatic solvents.
ABS	Acrylonitrile Butadiene Styrene	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e.g., quick wiping to remove grease).	Avoid gasoline and organic or aromatic solvents.
AES	Acrylonitrile Ethylene Styrene	80 (176)	Alcohol is harmless if applied only for short time in small amounts (e.g., quick wiping to remove grease).	Avoid gasoline and organic or aromatic solvents.
BMC	Bulk Moulding Compound	150 (302)	Alcohol and gasoline are harmless.	Most solvents are harmless.
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.
PA	Polyamide (Nylon)	80 (176)	Alcohol and gasoline are harmless.	Avoid battery acid.
PBT	Polybutylene Terephthalate	160 (320)	Alcohol and gasoline are harmless.	Most solvents are harmless.
PC	Polycarbonate	120 (248)	Alcohol is harmless.	Avoid gasoline, brake fluid, wax, wax removers and organic solvents. Avoid alkali.
PE	Polyethylene	80 (176)	Alcohol and gasoline are harmless.	Most solvents are harmless.
PET	Polyethylene Terephthalate	75 (167)	Alcohol and gasoline are harmless.	Avoid dipping in water.

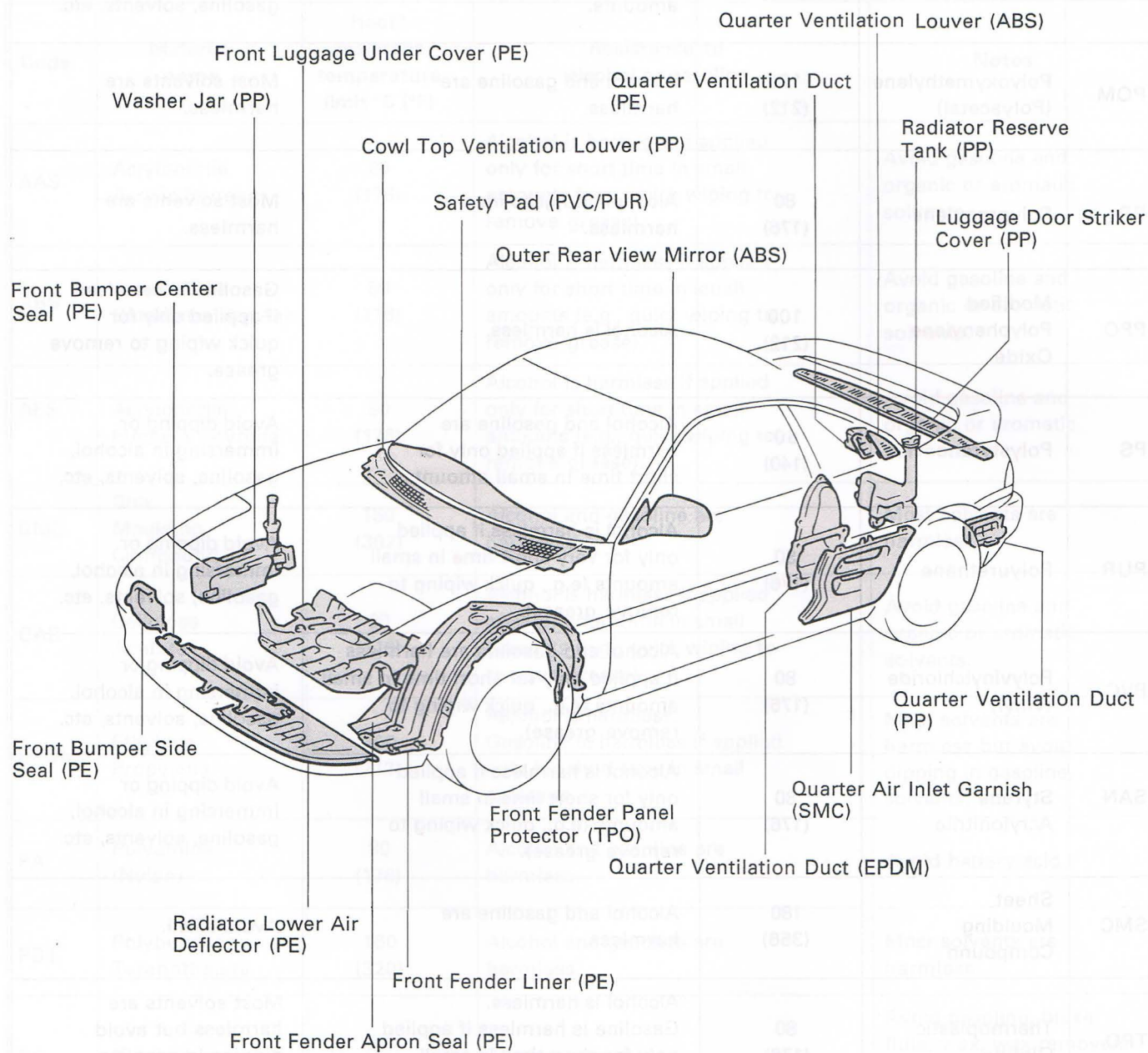
\* Temperatures higher than those listed here may result in material deformation during repair.

Code	Material name	Heat* resistant temperature limit °C (°F)	Resistance to alcohol or gasoline	Notes
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.
SMC	Sheet Moulding Compound	180 (356)	Alcohol and gasoline are harmless.	Avoid alkali.
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 very short time in small amounts (e.g., quick wiping to remove grease).	Avoid dipping or immersing in alcohol, gasoline, solvents, etc.
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.



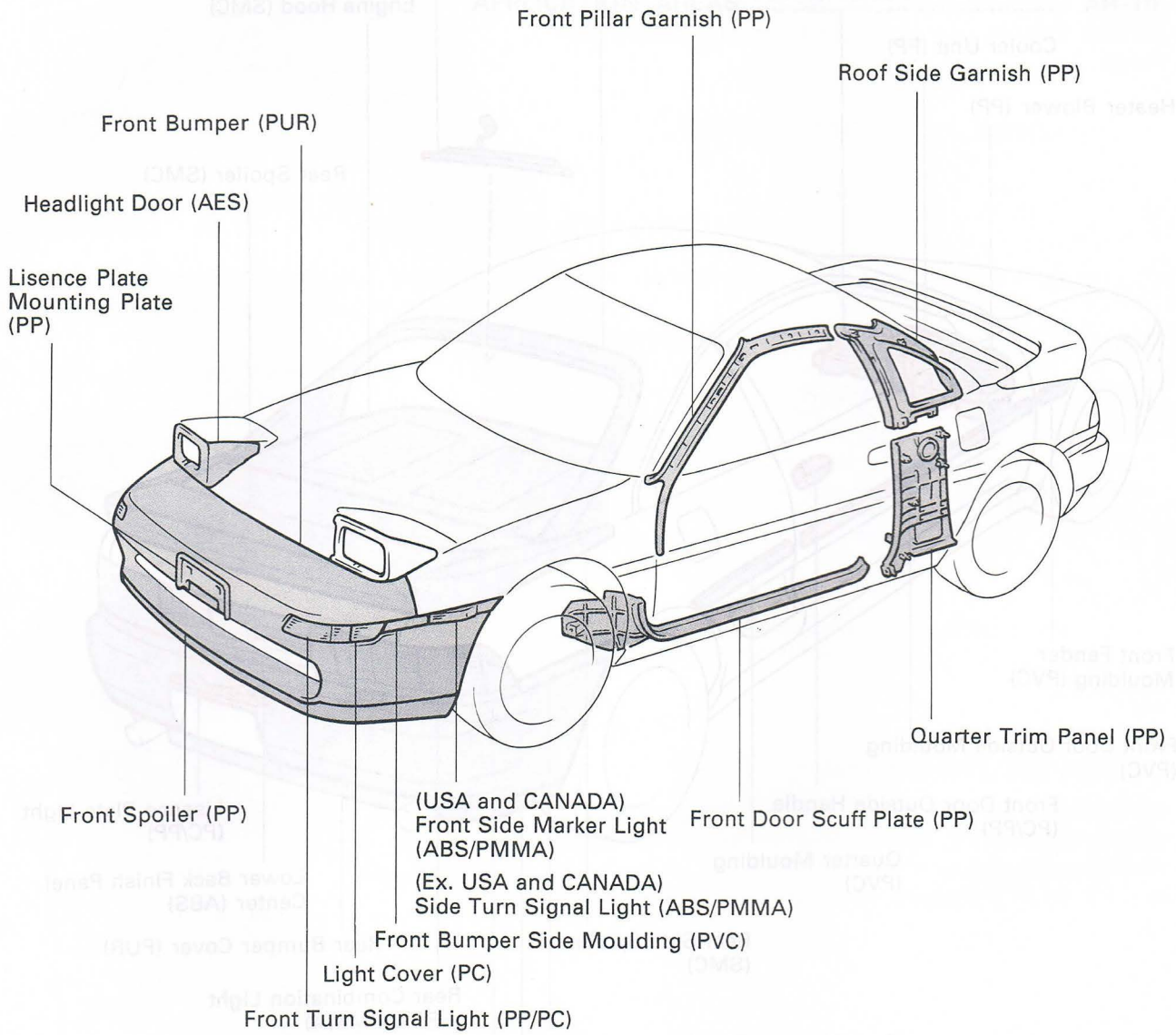
# LOCATION OF PLASTIC BODY PARTS



**HINT:**

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

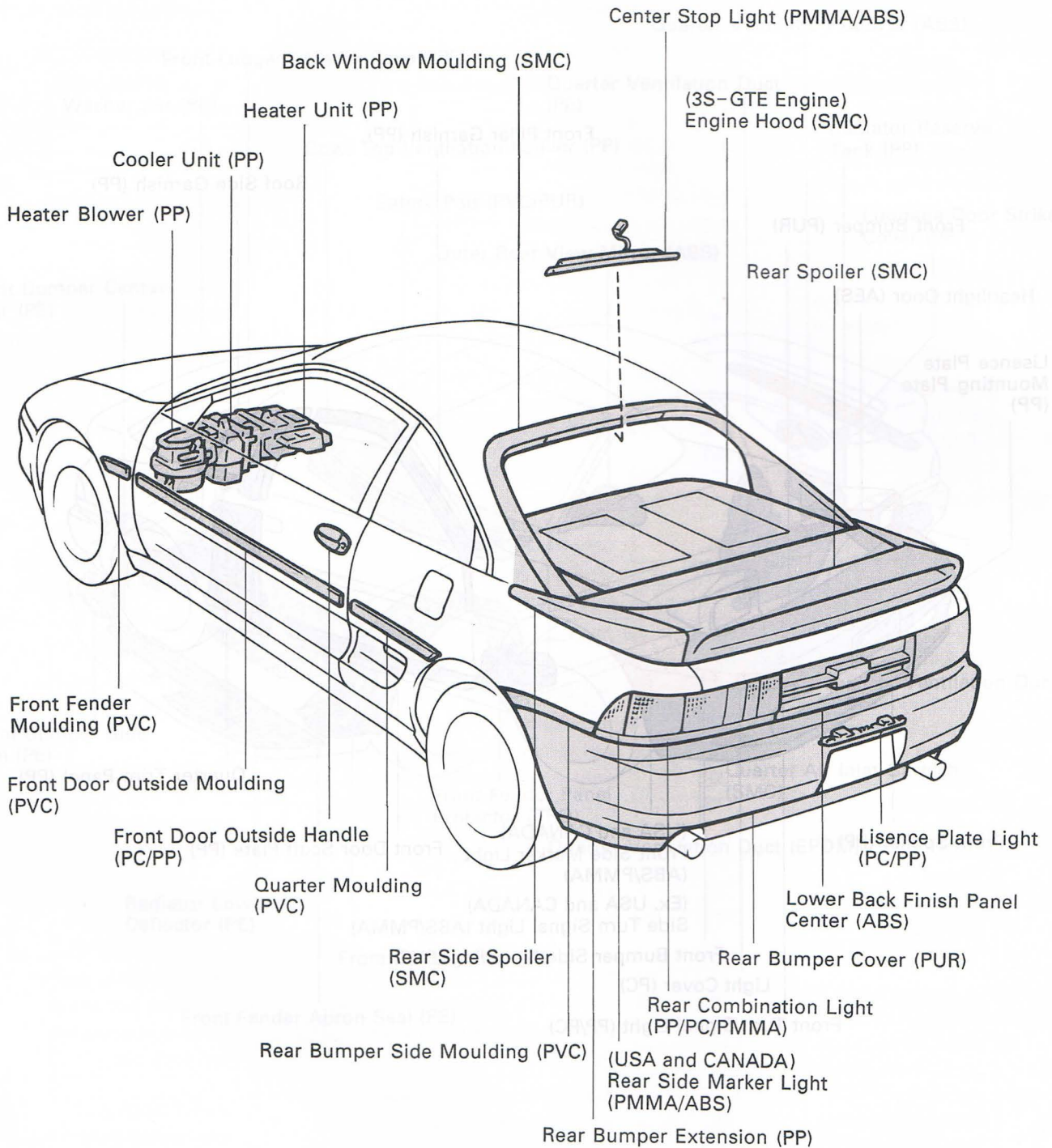




**HINT:**

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

LOCATION OF PLASTIC BODY PARTS



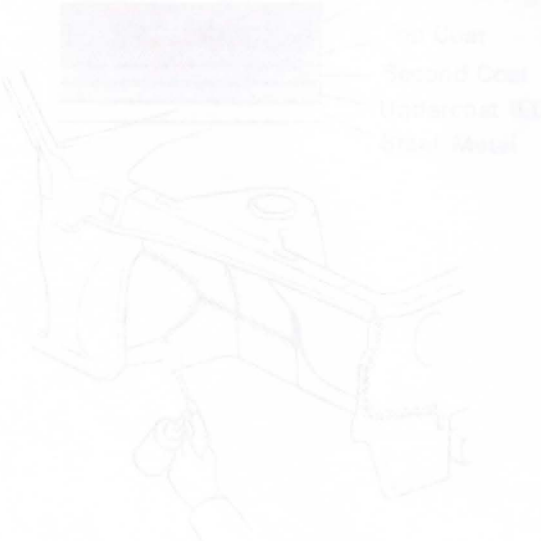
**HINT:**

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

# ANTI-RUST TREATMENT

	Page
GENERAL INFORMATION .....	AR-2
BODY PANEL SEALING AREAS .....	AR-4
BODY PANEL UNDERCOATING AREAS .....	AR-8
BODY PANEL ANTI-RUST AGENT APPLICATION AREAS .....	AR-9
BODY PANEL ANTI-CHIPPING PAINT APPLICATION AREAS.....	AR-10

**AR**



And rust treatments necessary before welding and before the painting process.

Weld-through primer (WTP) is applied to the joints and welds of the chassis. It is applied to the joints and welds of the chassis. It is applied to the joints and welds of the chassis.

Weld-through primer (WTP) is applied to the joints and welds of the chassis. It is applied to the joints and welds of the chassis. It is applied to the joints and welds of the chassis.

ANTI-RUST TREATMENT BEFORE PAINTING PROCESS

1. BODY SEALER APPLICATION

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

Apply the sealer to the body panel seams and joints of the doors, hoods, etc.

2. UNDERCOAT APPLICATION

To prevent corrosion, always apply sufficient undercoat to the bottom surfaces of the underbody and inside of the wheel housings.

Apply the undercoat to the bottom surfaces of the underbody and inside of the wheel housings.



## GENERAL INFORMATION

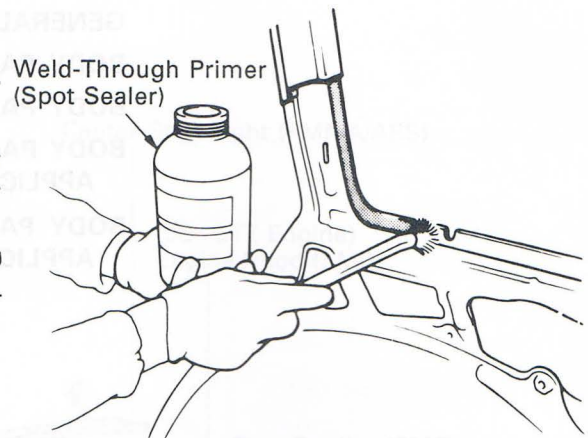
Anti-rust treatment is necessary before welding and before and after the painting process.

### ANTI-RUST TREATMENT BEFORE WELDING

#### 1. WELD-THROUGH PRIMER (SPOT SEALER) APPLICATION

For anti-corrosion measures, always apply the weld-through primer (spot sealer) to welding surfaces where the paint film has been removed.

*HINT: Apply the weld-through primer (spot sealer) so that it does not ooze out from the joining surfaces.*

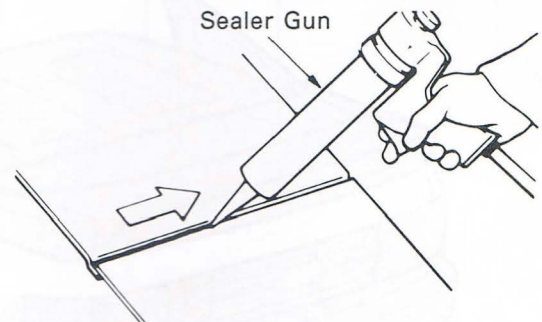


WELD-THROUGH PRIMER (SPOT SEALER) APPLICATION

### ANTI-RUST TREATMENT BEFORE PAINTING PROCESS

#### 1. BODY SEALER APPLICATION

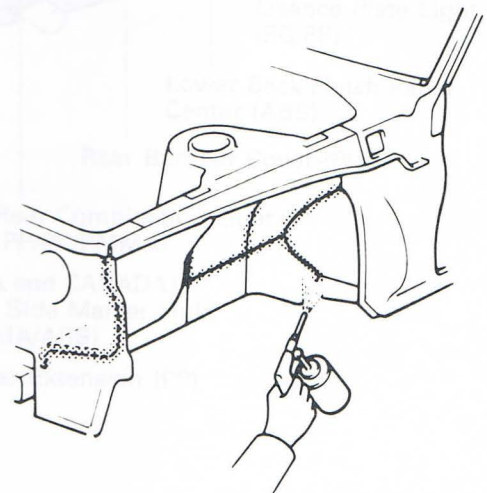
For water-proofing and anti-corrosion measures, always apply the body sealer to the body panel seams and hems of the doors, hoods, etc.



BODY SEALER APPLICATION

#### 2. UNDERCOAT APPLICATION

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.

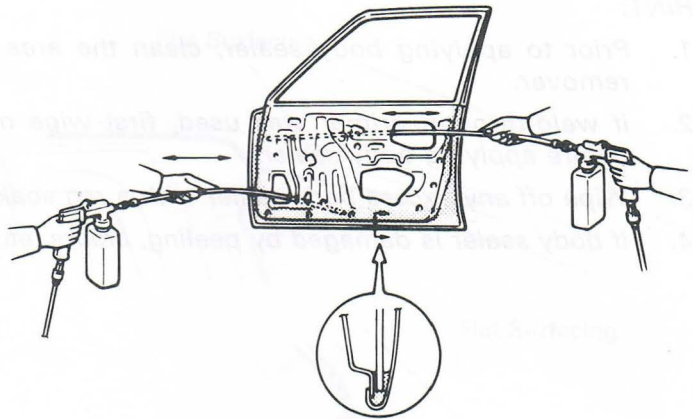


UNDERCOAT APPLICATION

**ANTI-RUST TREATMENT AFTER PAINTING PROCESS**

**1. ANTI-RUST AGENT (WAX) APPLICATION**

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.



**ANTI-RUST AGENT (WAX) APPLICATION**

**REFERENCE: ANTI-RUST TREATMENT BY PAINTING**

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

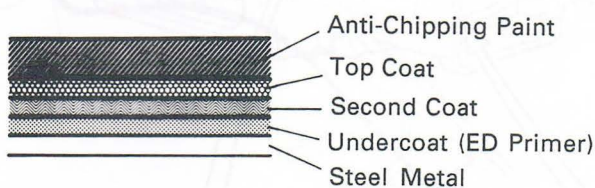
**1. ANTI-CHIPPING PAINT**

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

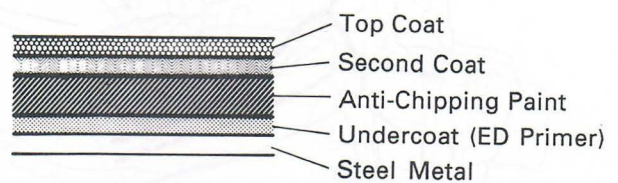
**HINT:**

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

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



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

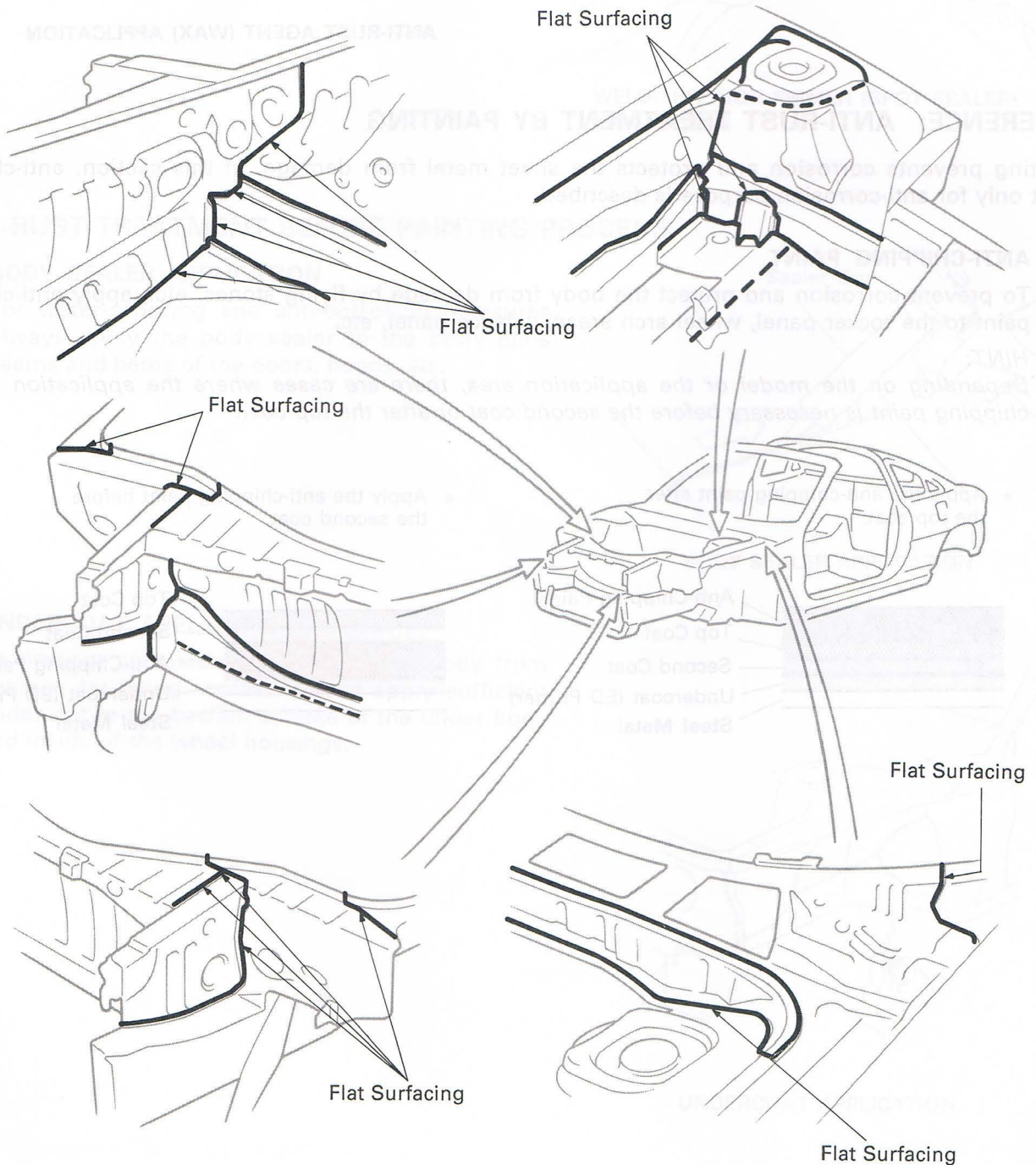




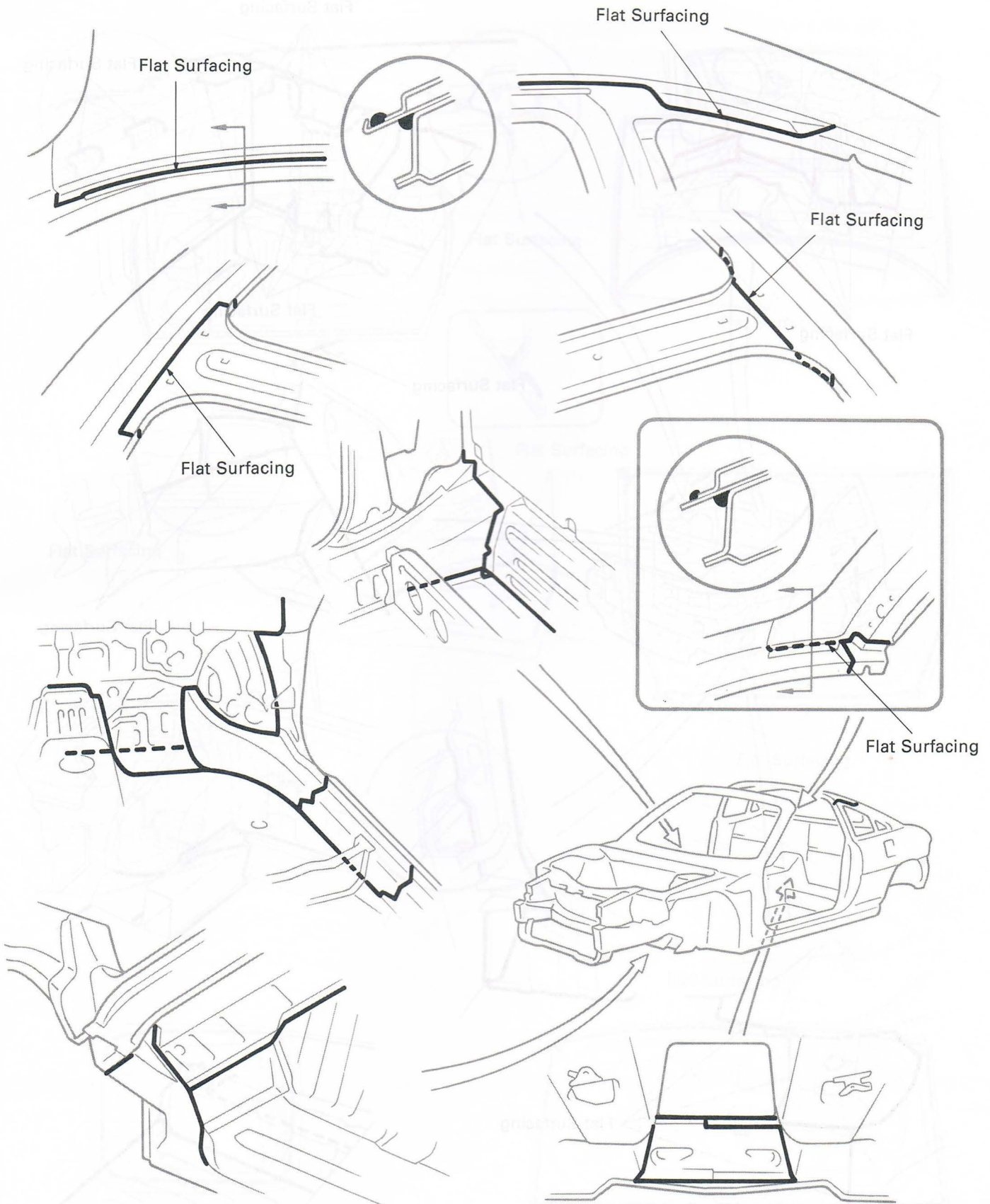
## BODY PANEL SEALING AREAS

### HINT:

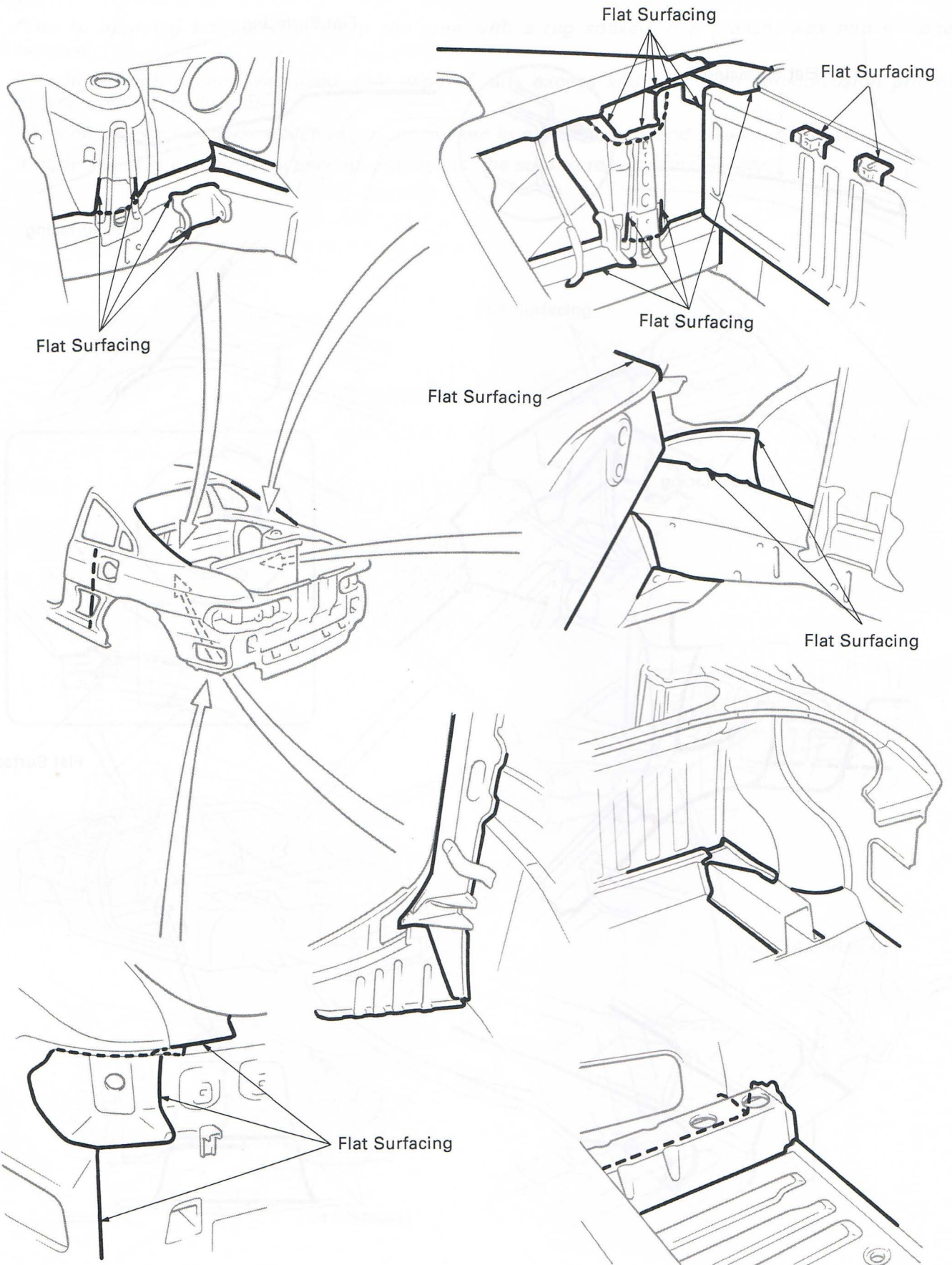
1. Prior to applying body sealer, clean the area with a rag soaked in a grease, wax and silicone remover.
2. If weld-through primer was used, first wipe off any excess and coat with anti-corrosion primer before applying body sealer.
3. Wipe off any excess body sealer with a rag soaked in a grease, wax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



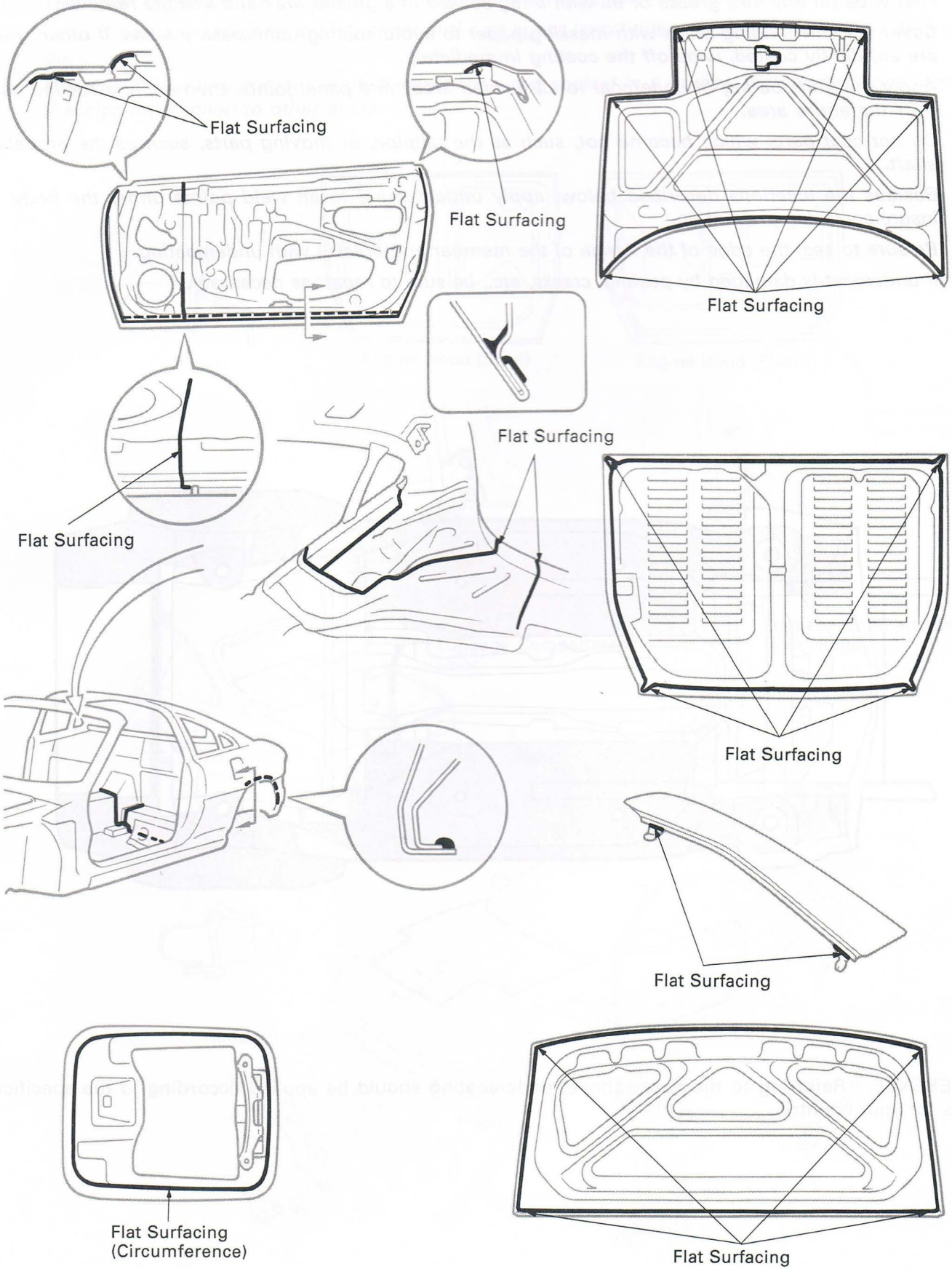




BODY PANEL SEALING AREAS





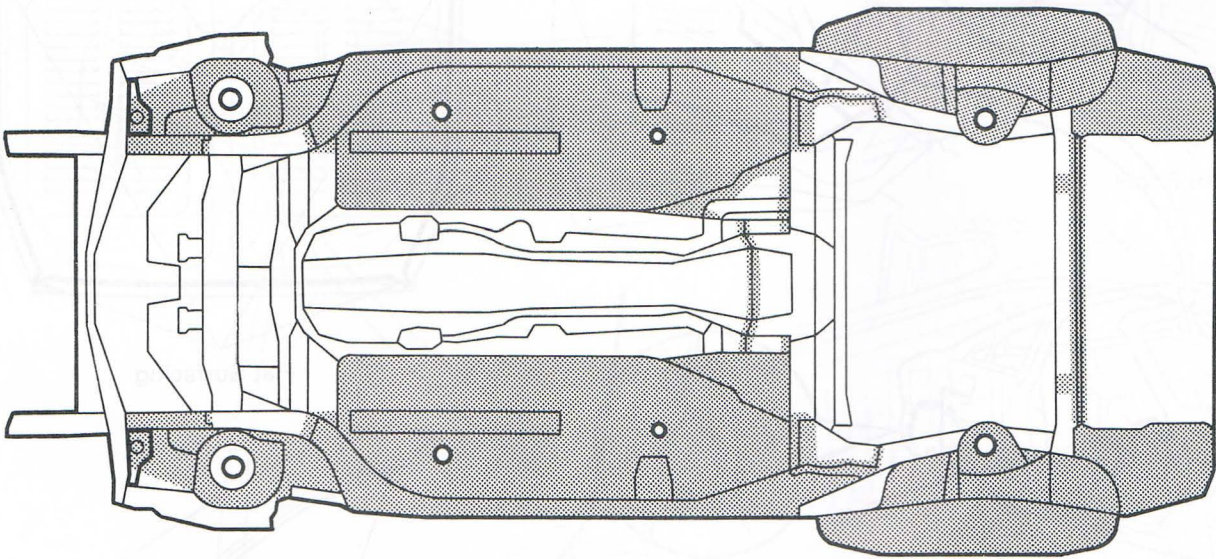




## BODY PANEL UNDERCOATING AREAS

### HINT:

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

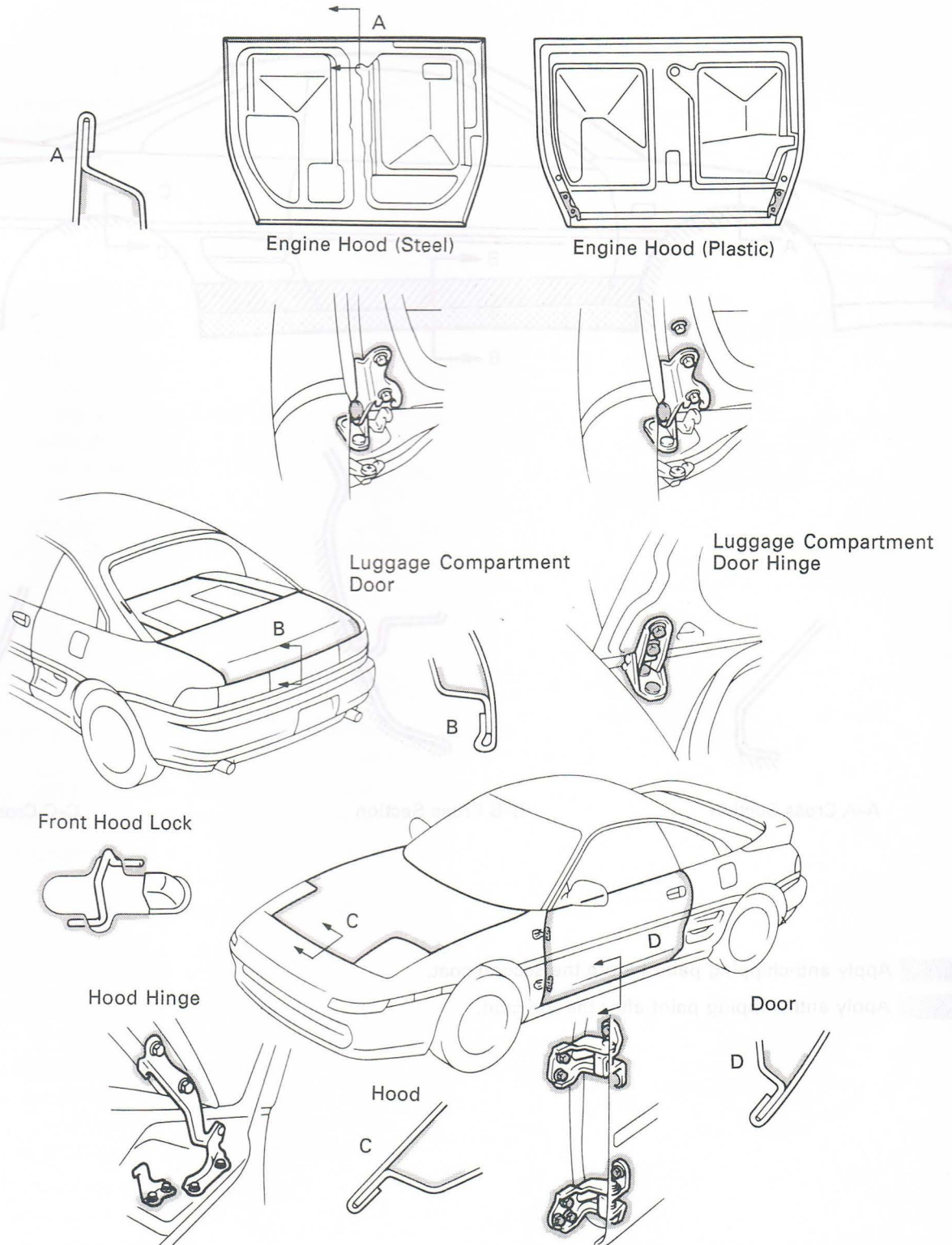


REFERENCE: Referring to the notes above, undercoating should be applied according to the specifications for your country.

# BODY PANEL ANTI-RUST AGENT (WAX) APPLICATION AREAS

**HINT:**

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

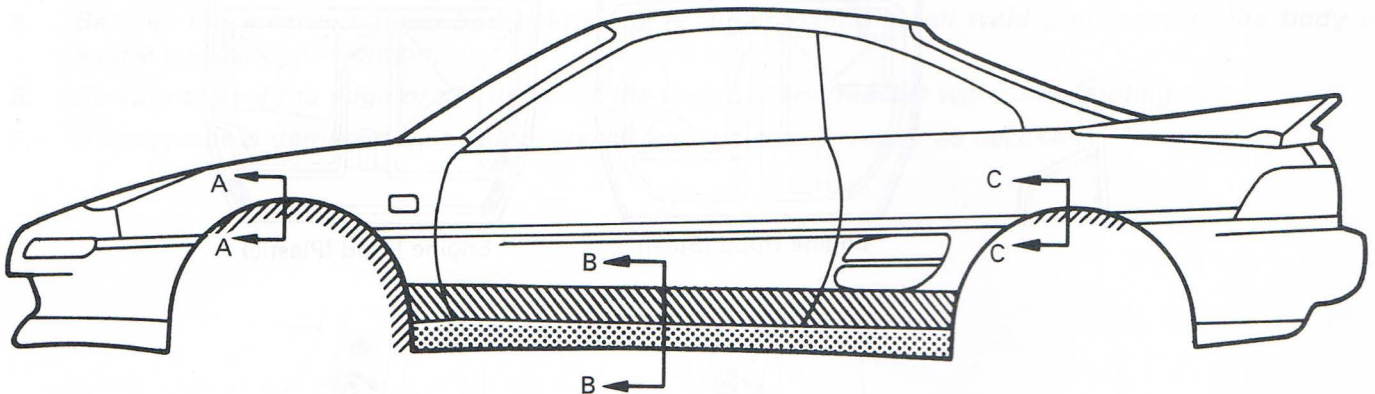




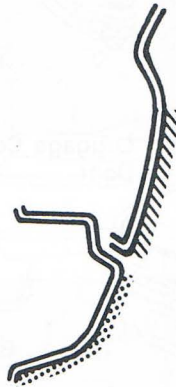
## BODY PANEL ANTI-CHIPPING PAINT APPLICATION AREAS

### HINT:

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




A-A Cross Section



B-B Cross Section



C-C Cross Section

 Apply anti-chipping paint before the second coat.

 Apply anti-chipping paint after the top coat.



# BODY DIMENSIONS

	<b>Page</b>
<b>GENERAL INFORMATION .....</b>	<b>DI-2</b>
<b>BODY DIMENSION DRAWINGS .....</b>	<b>DI-3</b>

**DI**

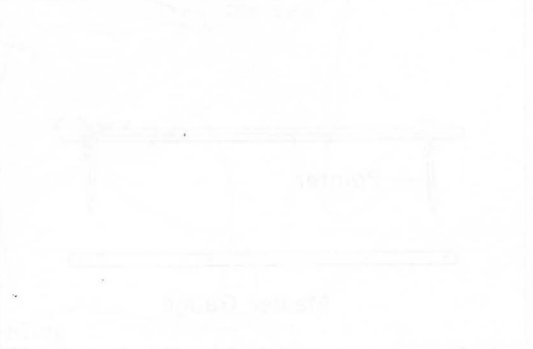
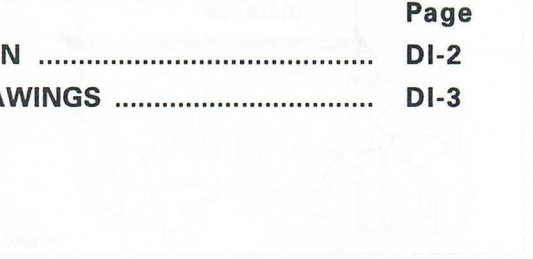
There are two types of dimensions in the drawing. One is the distance between the centers of two measuring points.

(Two-dimensional distance)  
 • Horizontal distance in forward/backward 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.

(a) Basically, all measurements are to be done with a tracking gauge. For bodies which 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 parts or pointers.

- HINT:**
1. The height of the left and right pointers must be equal.
  2. Always calibrate the tracking gauge before measuring or after adjusting the pointer height.
  3. Take care not to tilt the tracking gauge or other wise stock it.
  4. Confirm that the pointers are securely in the holes.

(a) When using a tape measure, avoid twists and bends in the measuring part.  
 (b) When tracking's diagonal measurement from the front spring support (member) to the suspension member upper installation hole, measure along the front spring support center surface.

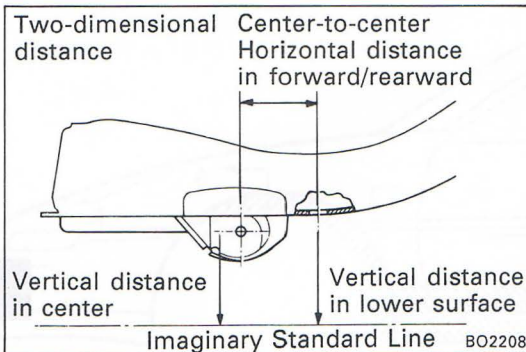
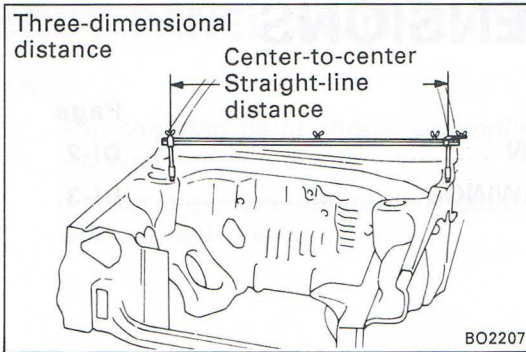


## GENERAL INFORMATION

### 1. BASIC DIMENSIONS

(a) There are two types of dimensions in the diagram. (Three-dimensional distance)

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



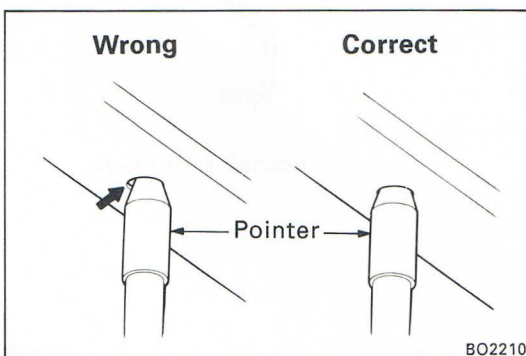
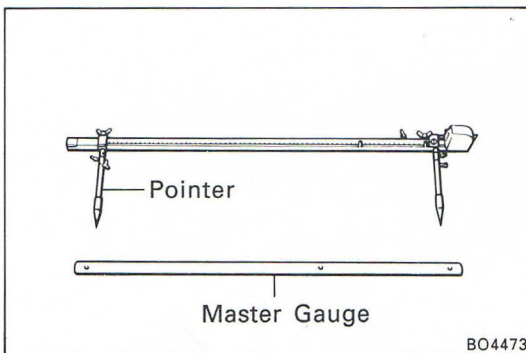
(Two-dimensional distance)

- 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.

### 2. MEASURING

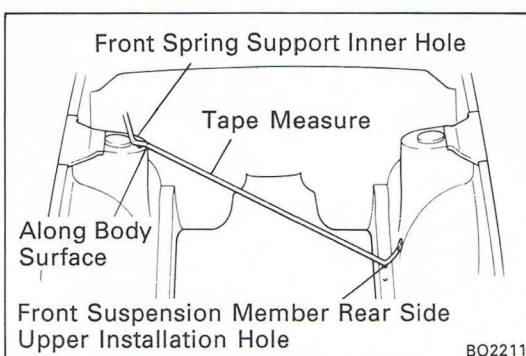
(a) Basically, all measurements are to be done with a tracking gauge. For portions where it is not possible to use a tracking gauge, a tape measure should be used.

(b) Use only a tracking gauge that has no looseness in the body, measuring plate, or pointers.



#### HINT:

1. The height of the left and right pointers must be equal.
2. Always calibrate the tracking gauge before measuring or after adjusting the pointer height.
3. Take care not to drip 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.

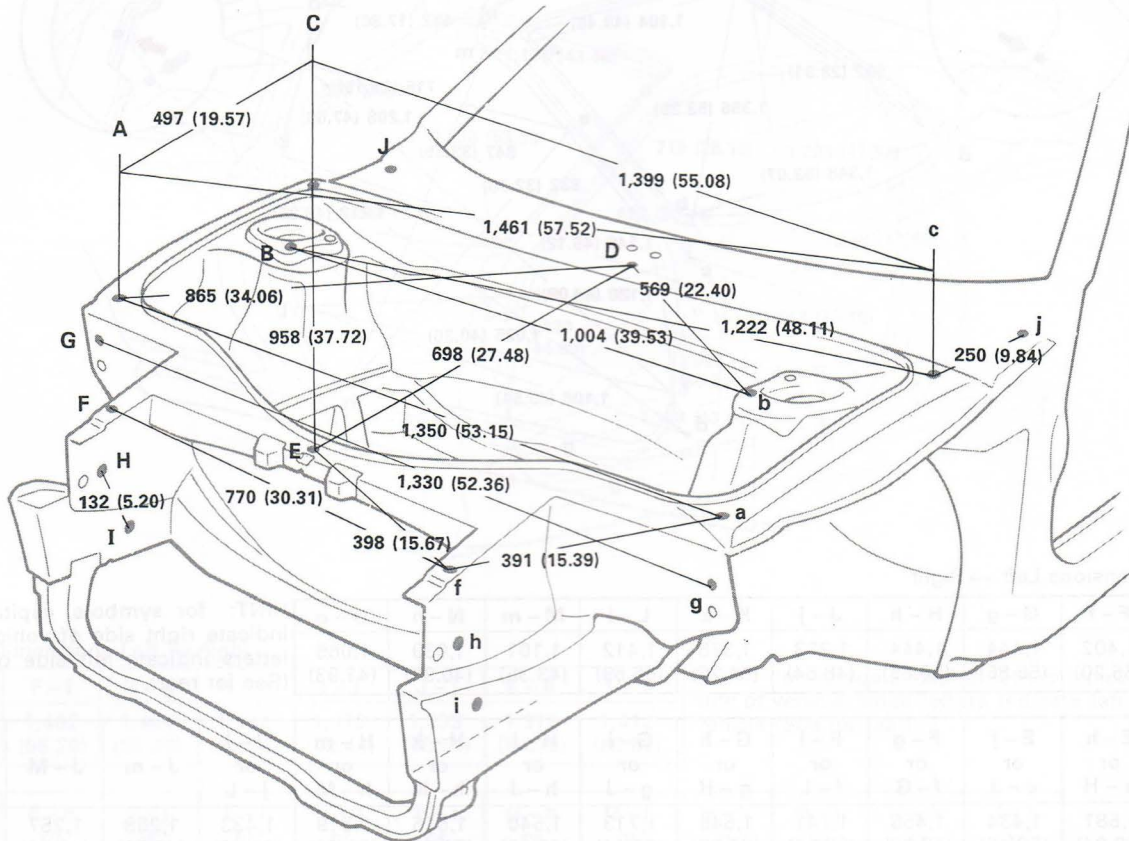
(d) When tracking a diagonal measurement from the front spring support inner hole to the suspension member upper rear installation hole, measure along the front spring support panel surface.



**BODY DIMENSION DRAWINGS**

**FRONT LUGGAGE COMPARTMENT**

(Three-Dimensional Distance)

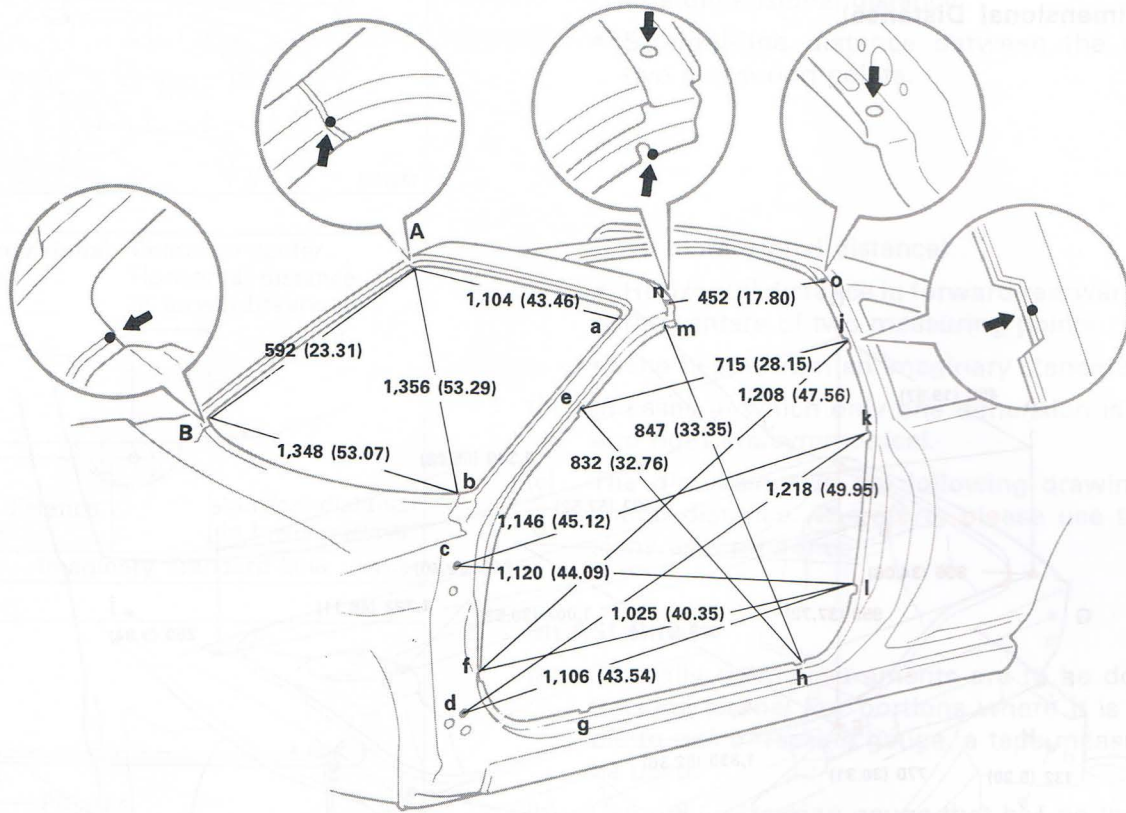


mm (in.)

Symbol	Name	Hole dia.
A, a	Front fender installation nut – front	6 (0.24) nut
B, b	Front suspension brace installation nut	10 (0.39) nut
C, c	Front fender installation nut – rear	6 (0.24) nut
D	Wiper pivot installation hole (center)	7 (0.28)
E	Radiator upper seal installation hole (center)	7 (0.28)
F, f	Radiator upper seal installation hole	7 (0.28)
G, g	Front luggage end panel standard hole	10 (0.39)
H, h	Radiator support standard hole	10 (0.39)
I, i	Front side member standard hole	15 (0.59)
J, j	Hood hinge installation nut – rear	8 (0.31) nut

BODY OPENING AREAS (Side View: w/T-Bar Roof)

(Three-Dimensional Distance)



Vehicle Dimensions Left ↔ Right

E - e	F - f	G - g	H - h	J - j	K - k	L - l	M - m	N - n	O - o
1,253 (49.33)	1,402 (55.20)	1,444 (56.85)	1,444 (56.85)	1,233 (48.54)	1,378 (54.25)	1,412 (55.59)	1,101 (43.35)	1,039 (40.91)	1,065 (41.93)

HINT: for symbols, capital letters indicate right side of vehicle, small letters indicate left side of vehicle (See for rear).

E - g or e - G	E - h or e - H	E - j or e - J	F - g or f - G	F - l or f - L	G - h or g - H	G - j or g - J	H - j or h - J	H - k or h - K	H - m or h - M	J - l or j - L	J - m	J - M	N - o or n - O
1,510 (59.45)	1,581 (62.24)	1,434 (56.46)	1,455 (57.28)	1,741 (68.54)	1,545 (60.83)	1,713 (67.44)	1,540 (60.63)	1,515 (59.65)	1,519 (59.80)	1,433 (56.42)	1,258 (49.53)	1,257 (49.49)	1,145 (45.08)

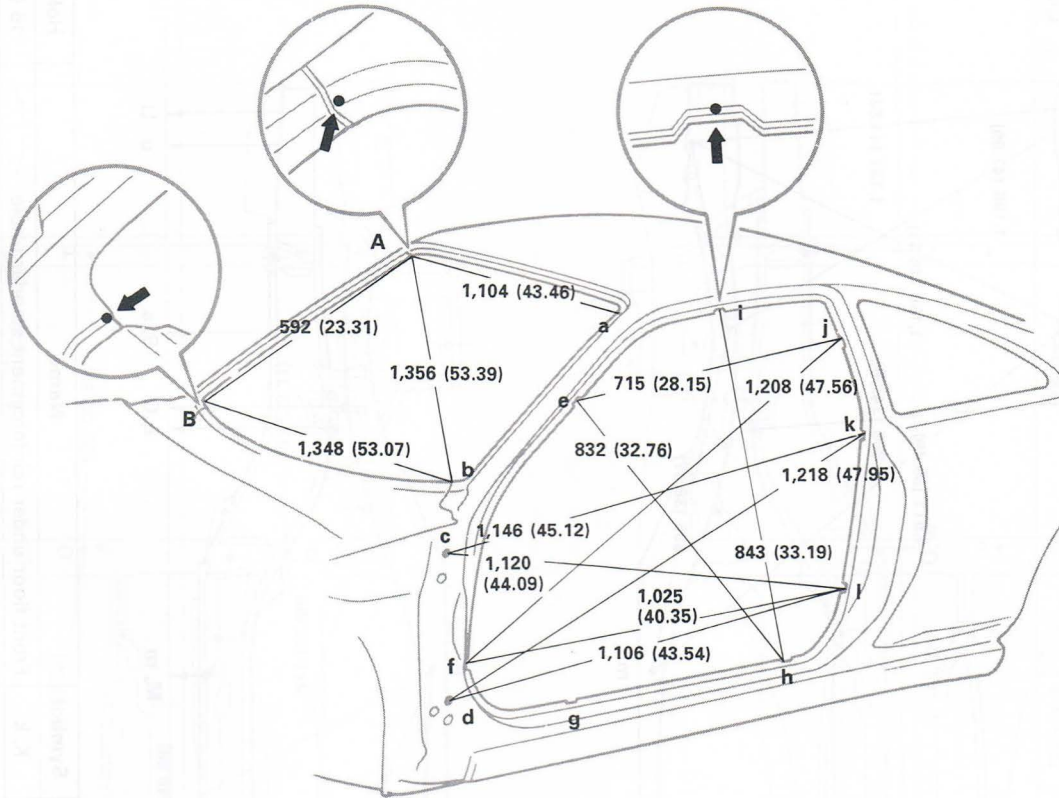
mm (in.)

Symbol	Name	Hole dia.
A, a	Roof panel/Front body pillar adjoining portion	—
B, b	Front body pillar/Cowl panel adjoining portion	—
C, c	Front door hinge installation nut	8 (0.31) nut
D, d	Front door hinge installation nut	8 (0.31) nut
E, e	Front body pillar assembly mark	—
F, f	Front body pillar assembly mark	—
G, g	Rocker panel assembly mark	—
H, h	Rocker panel assembly mark	—
J, j	Quarter panel assembly mark	—
K, k	Quarter panel assembly mark	—
L, l	Quarter panel assembly mark	—
M, m	Front body pillar cut-out portion	—
N, n	Removable roof weatherstrip installation hole	7 (0.28)
O, o	Removable roof weatherstrip installation hole	7 (0.28)



BODY OPENING AREAS (Side View: w/o T-Bar Roof)

(Three-Dimensional Distance)



Vehicle Dimensions Left ↔ Right

E - e	F - f	G - g	H - h	I - i	J - j	K - k	L - l
1,253 (49.33)	1,402 (55.20)	1,444 (56.85)	1,444 (56.85)	1,078 (42.44)	1,233 (48.54)	1,378 (54.25)	1,412 (55.59)

HINT: for symbols, capital letters indicate right side of vehicle, small letters indicate left side of vehicle (See for rear).

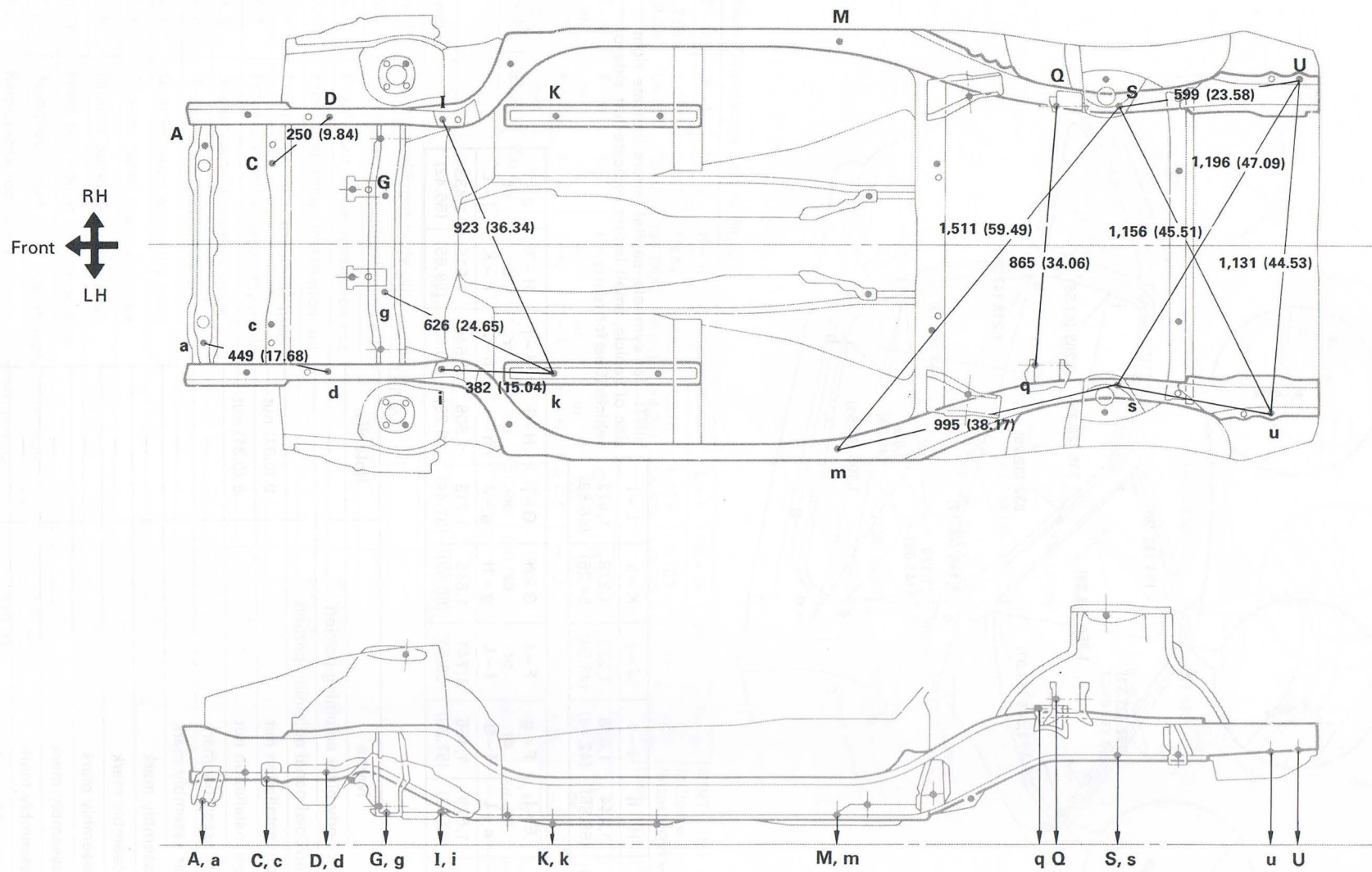
E - g or e - G	E - h or e - H	E - j or e - J	E - l or e - L	F - g or f - G	F - l or f - L	G - h or g - H	G - j or g - J	H - i or h - I	H - j or h - J	H - k or h - K	J - l or j - L
1,510 (59.45)	1,581 (62.24)	1,434 (56.46)	1,579 (62.17)	1,455 (57.28)	1,741 (68.54)	1,545 (60.83)	1,713 (67.44)	1,506 (59.29)	1,540 (60.63)	1,515 (59.65)	1,433 (56.42)

mm (in.)

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

UNDER BODY

(Three-Dimensional Distance)



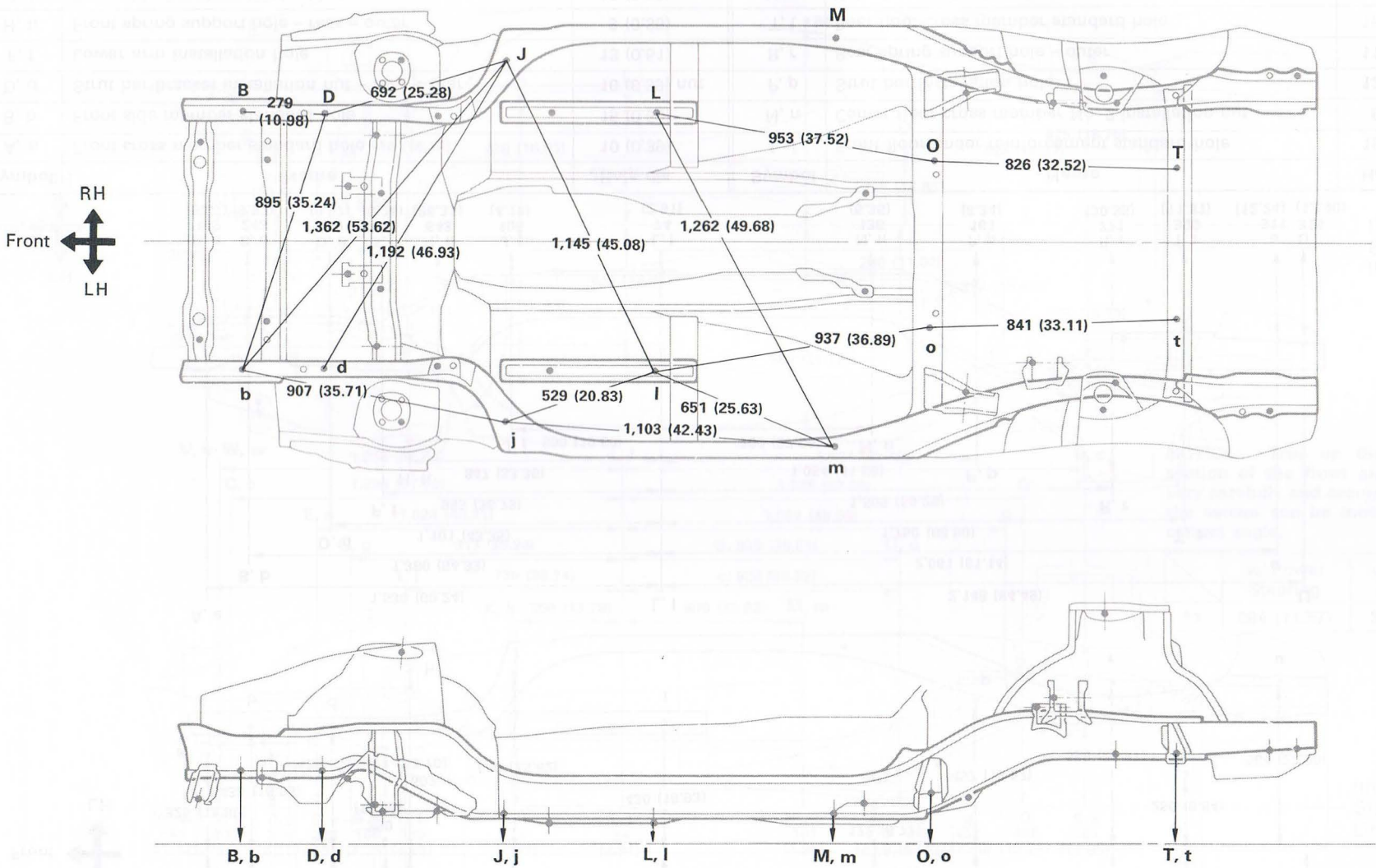
BO5066

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Front cross member standard hole	10 (0.39)	K, k	Front floor under reinforcement standard hole	15 (0.59)
C, c	Strut bar bracket installation nut - front = inner	10 (0.39)	M, m	Rear floor side member standard hole	15 (0.59)
D, d	Strut bar bracket installation nut - rear = rear	10 (0.39)	Q, q	Engine mounting bracket hole - front	13 (0.51)
G, g	Steering gear box support member standard hole	15 (0.59)	S, s	Rear suspension cross member installation nut - front	14 (0.55) nut
I, i	Stabilizer bar installation nut - front	8 (0.31) nut	U, u	Tail pipe bracket installation nut	8 (0.31) nut

mm (in.)



(Three-Dimensional Distance)



B05066

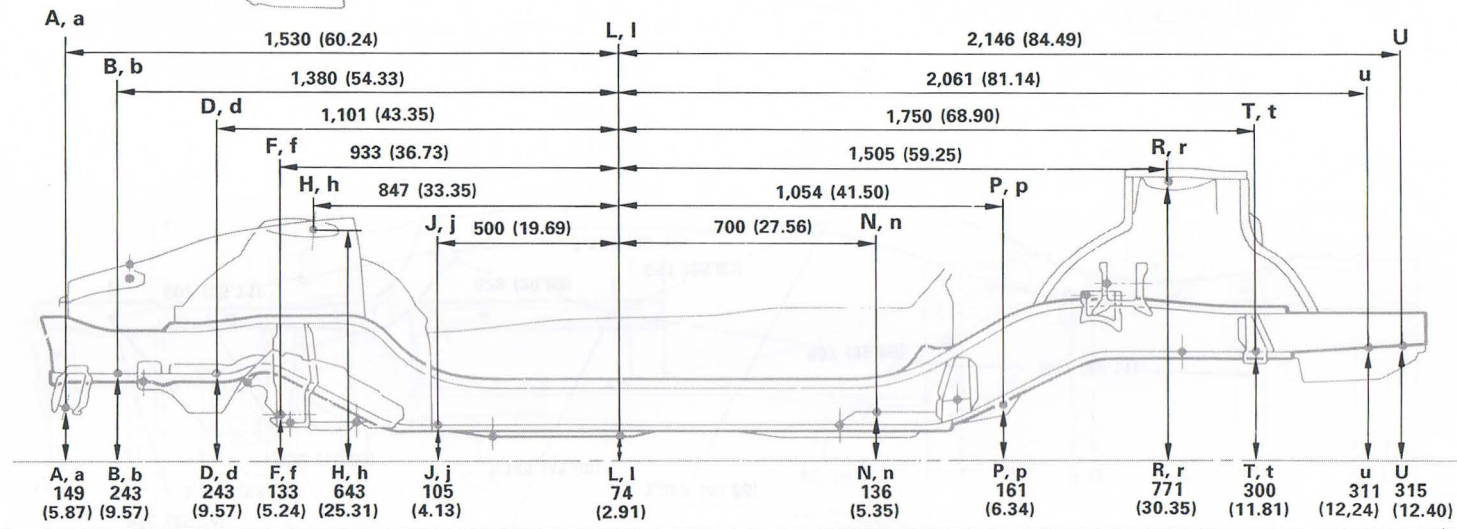
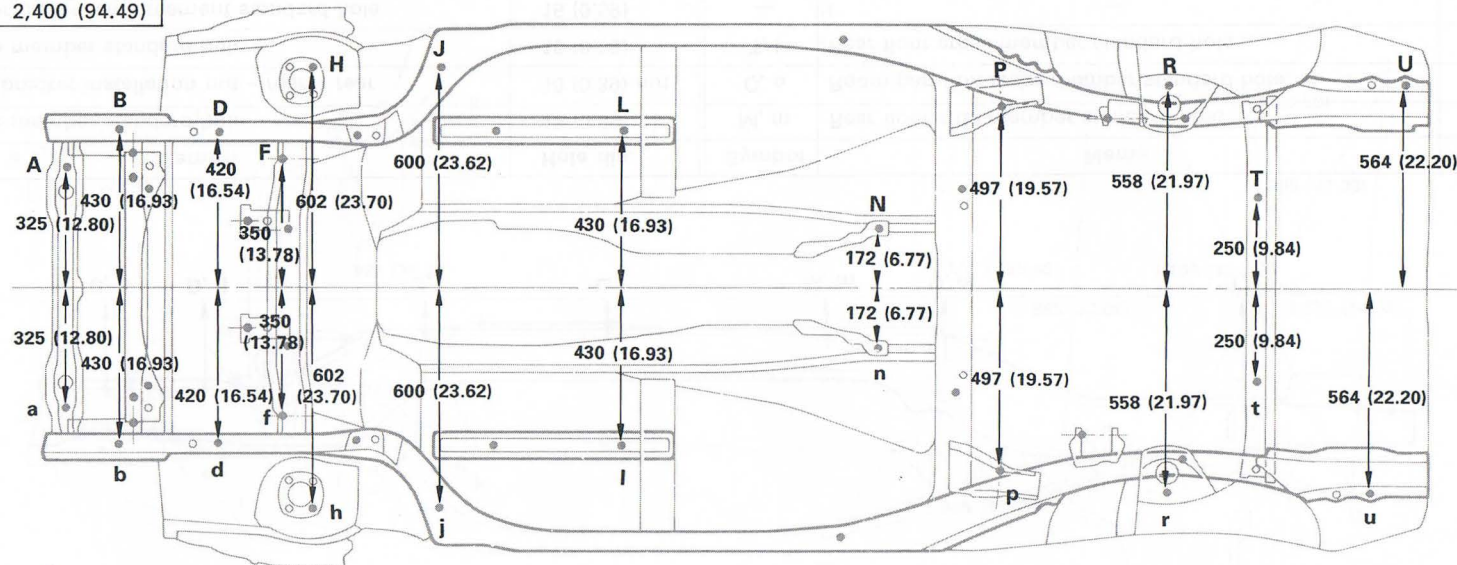
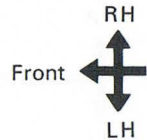
Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
B, b	Front side member standard hole	15 (0.59)	M, m	Rear floor side member standard hole	15 (0.59)
D, d	Strut bar bracket installation nut – rear = rear	10 (0.39) nut	O, o	Room partition cross member standard hole	15 (0.59)
J, j	Front side member standard hole	15 (0.59)	T, t	Rear floor cross member standard hole	15 (0.59)
L, l	Front floor under reinforcement standard hole	15 (0.59)	—	—	—

mm (in.)

UNDER BODY (Cont'd)

(Two-Dimensional Distance)

Wheel base 2,400 (94.49)



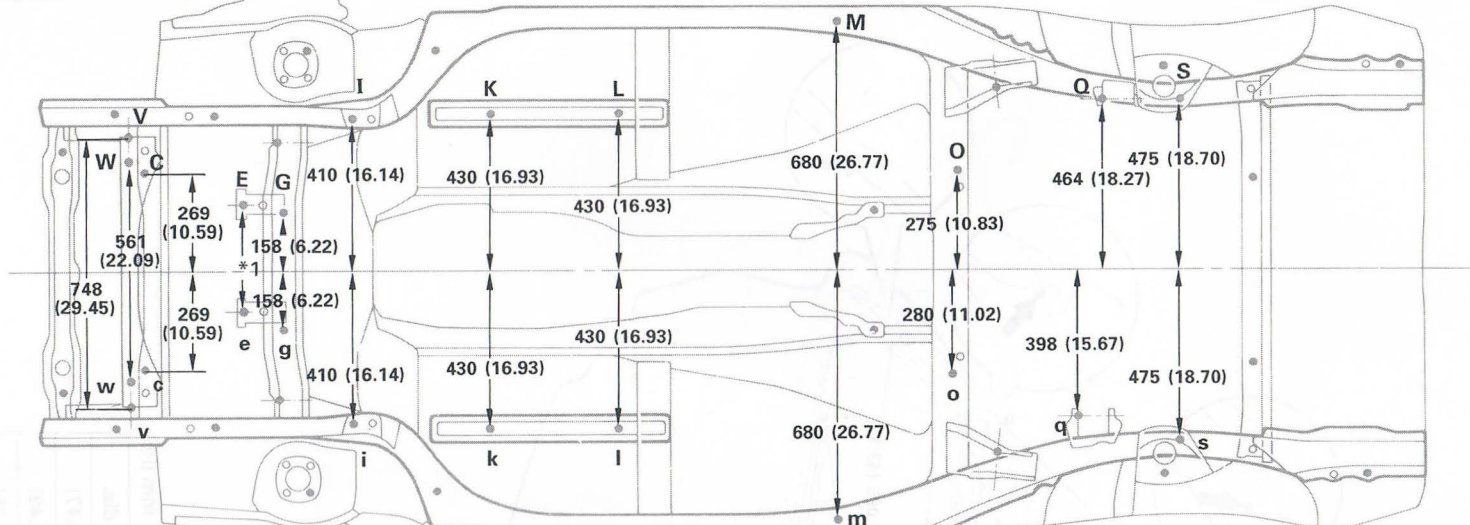
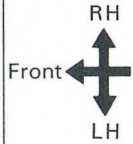
Imaginary Standard Line  
mm (in.)

BO5067

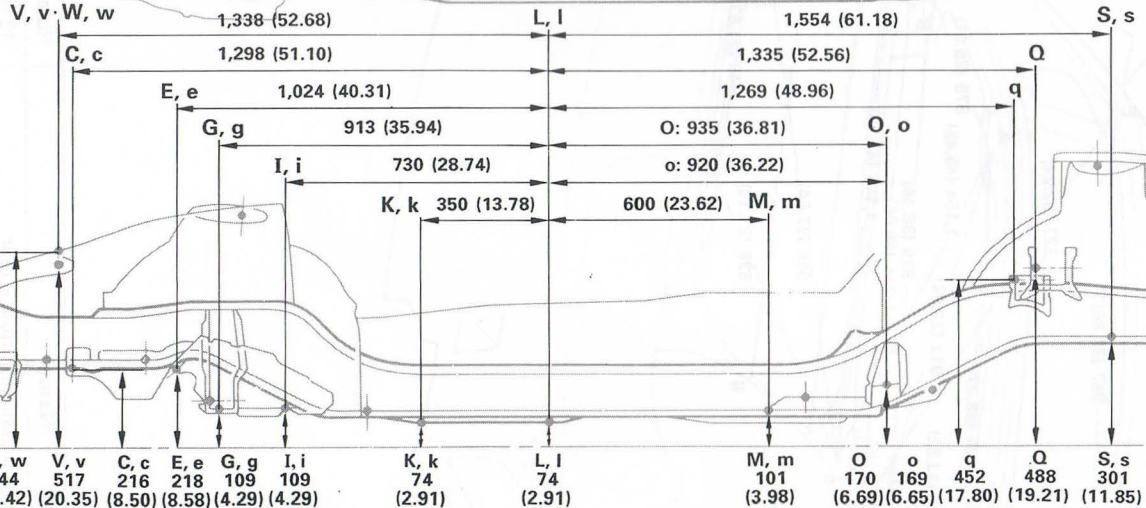
Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
A, a	Front cross member standard hole	10 (0.39)	L, l	Front floor under reinforcement standard hole	15 (0.59)
B, b	Front side member standard hole	15 (0.59)	N, n	Center floor cross member No. 2 installation nut	8 (0.31) nut
D, d	Strut bar bracket installation nut - rear = rear	10 (0.39) nut	P, p	Strut bar installation hole	12 (0.47)
F, f	Lower arm installation hole	13 (0.51)	R, r	Rear spring support hole - outer	11 (0.43)
H, h	Front spring support hole - rear = outer	9 (0.35)	T, t	Rear floor cross member standard hole	15 (0.59)
J, j	Front side member standard hole	15 (0.59)	U, u	Tail pipe bracket installation nut	8 (0.31) nut



Wheel base 2,400 (94.49)



(Two-Dimensional Distance)



**NOTICE:** True up the mounting section of the front airbag sensor very carefully and accurately so that the sensor can be mounted at the correct angle.

	w/ Power Steering	w/o Power Steering
*1	294 (11.57)	305 (12.01)

Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
W, w	Airbag front sensor installation hole - inner	544 (21.42)	M, m	Rear floor side member standard hole	15 (0.59)
V, v	Airbag front sensor installation hole - outer	517 (20.35)	O, o	Room partition cross member standard hole	15 (0.59)
C, c	Strut bar bracket installation nut - front = inner	216 (8.50)	Q, q	Engine mounting bracket hole - front	13 (0.51)
E, e	Steering gear box installation nut	218 (8.58)	S, s	Rear suspension cross member installation nut - front	14 (0.55) nut
G, g	Steering gear box support member standard hole	109 (4.29)	V, v	Airbag front sensor installation hole - outer	10 (0.39)
I, i	Stabilizer bar installation nut - front	109 (4.29)	W, w	Airbag front sensor installation hole - inner	11x9 (0.43x0.35)
K, k	Front floor under reinforcement standard hole	74 (2.91)			
L, l	Front floor under reinforcement standard hole	74 (2.91)			
M, m	Rear floor side member standard hole	101 (3.98)			
O, o	Room partition cross member standard hole	170 (6.69)			
Q, q	Engine mounting bracket hole - front	169 (6.65)			
S, s	Rear suspension cross member installation nut - front	452 (17.80)			
		488 (19.21)			
		301 (11.85)			

Imaginary Standard Line

mm (in.)

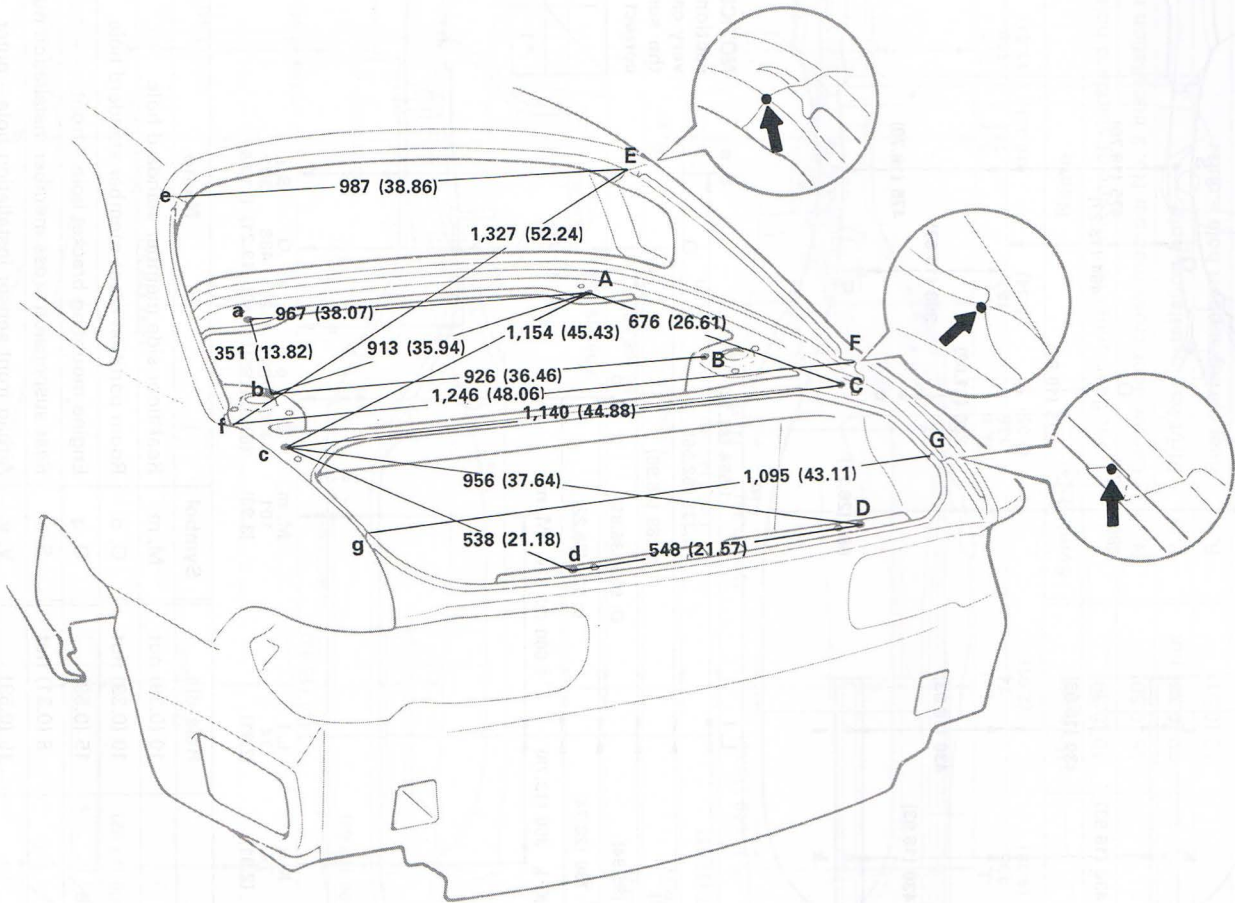
Symbol	Name	Hole dia.	Symbol	Name	Hole dia.
C, c	Strut bar bracket installation nut - front = inner	10 (0.39) nut	M, m	Rear floor side member standard hole	15 (0.59)
E, e	Steering gear box installation nut	10 (0.39) nut	O, o	Room partition cross member standard hole	15 (0.59)
G, g	Steering gear box support member standard hole	15 (0.59)	Q, q	Engine mounting bracket hole - front	13 (0.51)
I, i	Stabilizer bar installation nut - front	8 (0.31) nut	S, s	Rear suspension cross member installation nut - front	14 (0.55) nut
K, k	Front floor under reinforcement standard hole	15 (0.59)	V, v	Airbag front sensor installation hole - outer	10 (0.39)
L, l	Front floor under reinforcement standard hole	15 (0.59)	W, w	Airbag front sensor installation hole - inner	11x9 (0.43x0.35)

UNDER BODY (Cont'd)

BODY DIMENSIONS — Body Dimension Drawings

BODY OPENING AREAS (Rear View)

(Three-Dimensional Distance)



mm (in.)

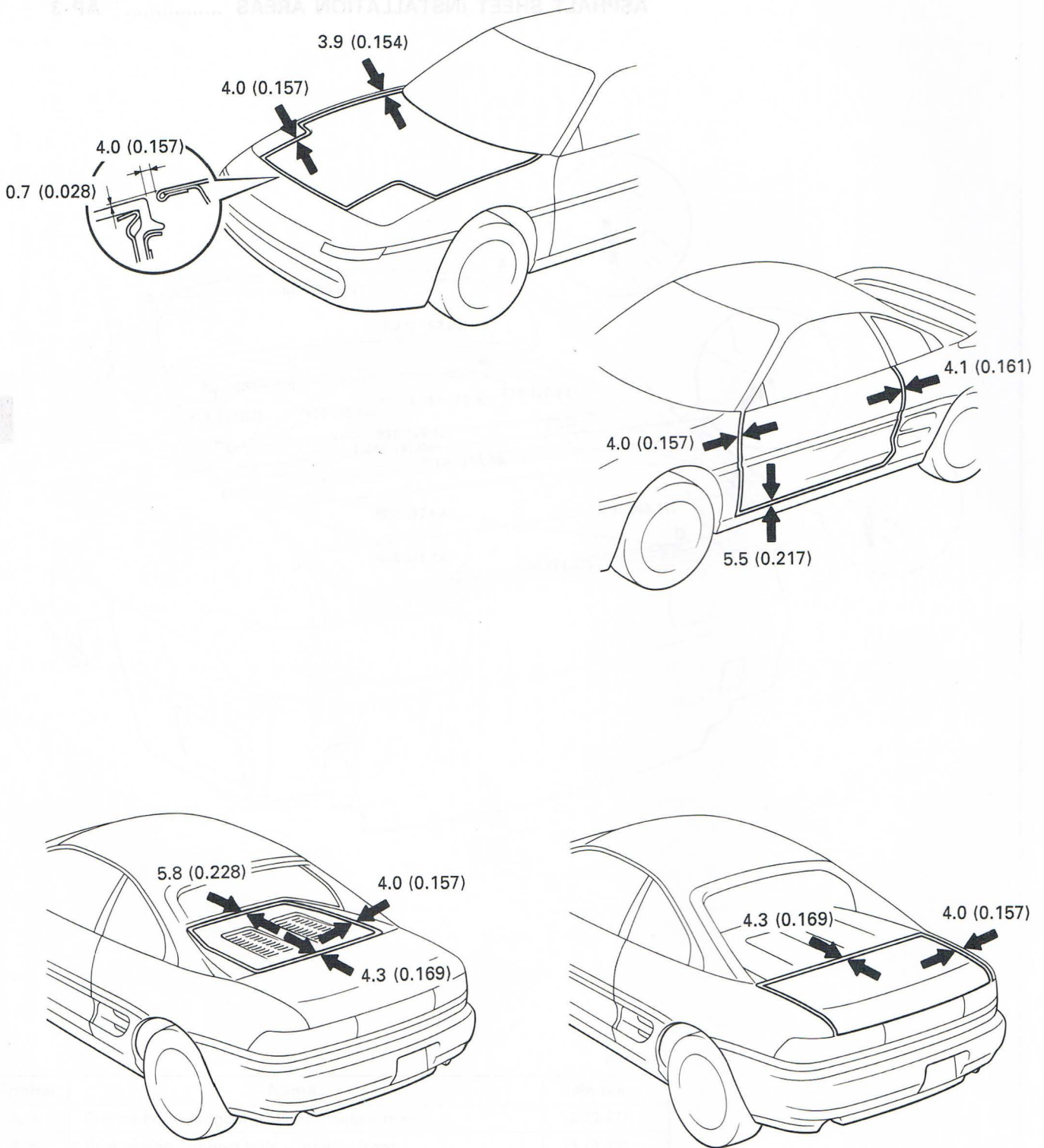
Symbol	Name	Hole dia.
A, a	Engine hood hinge installation hole - rear	12 (0.47)
B, b	Rear spring support hole - inner = front	11 (0.43)
C, c	Luggage door hinge installation hole-front	9 (0.35)
D, d	Luggage finish plate installation hole	8.5 (0.335)
E, e	Roof panel/Roof side panel adjoining portion	—
F, f	Roof side panel/Quarter panel adjoining portion	—
G, g	Luggage opening trough/Quarter panel adjoining portion	—





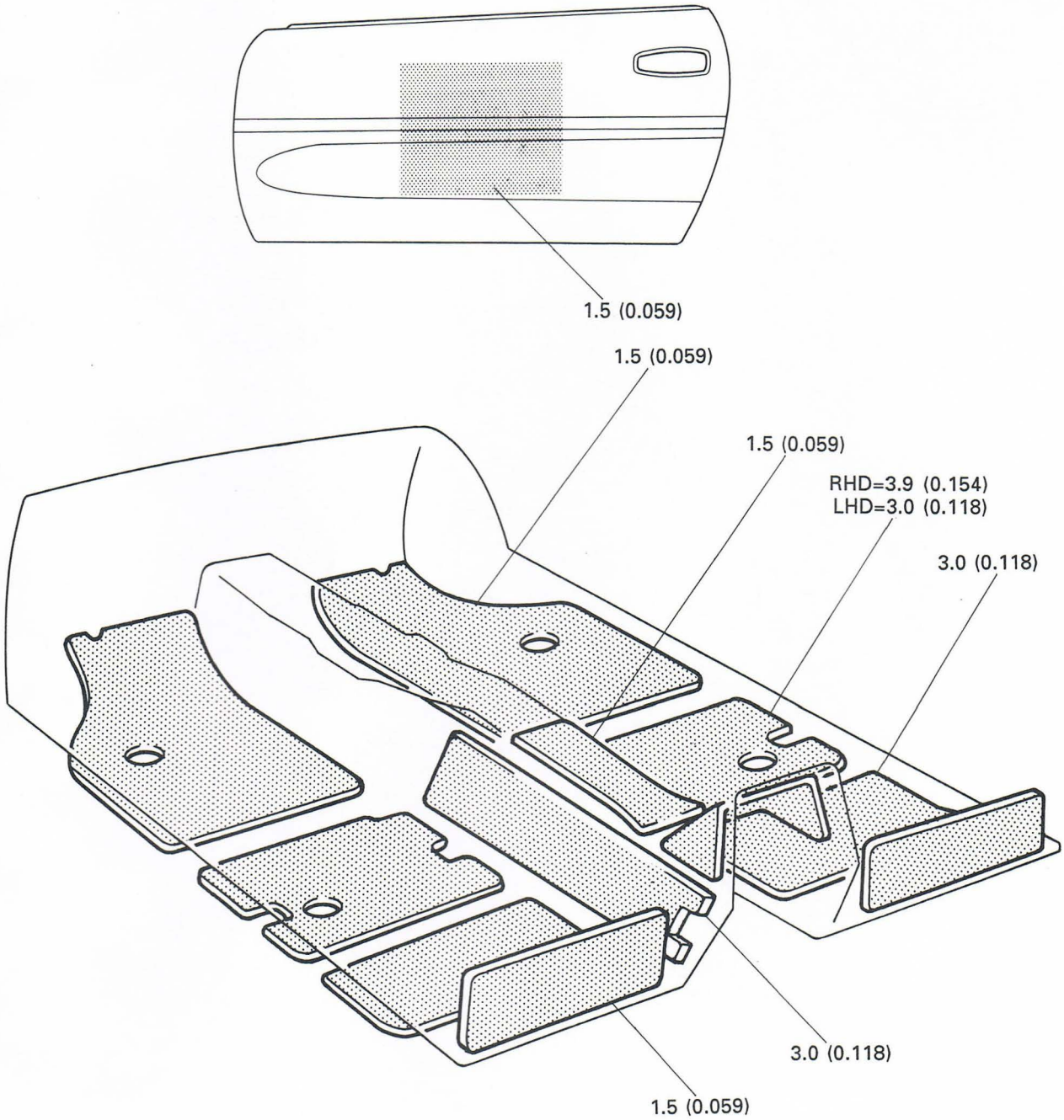
# FIT STANDARDS

After doors and the engine hood are installed, be sure to perform fit adjustment to prevent abnormal wind noise and ensure a good appearance.





# ASPHALT SHEET INSTALLATION AREAS



mm (in.): The numbers in the diagram indicate the thickness of the asphalt sheet.









