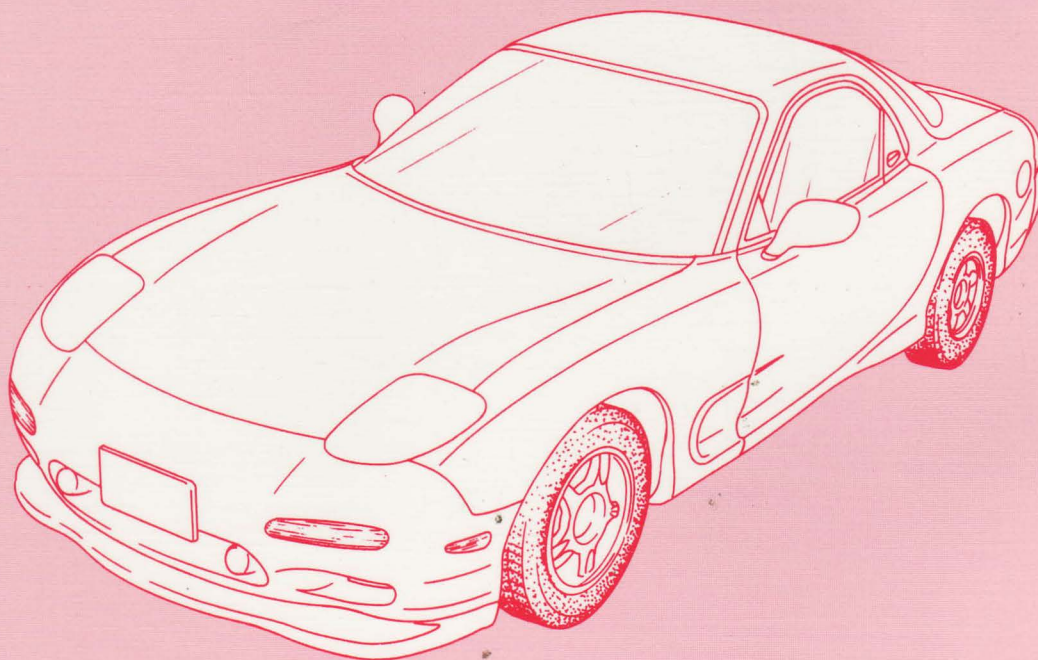


# Mazda RX-7

967

## Bodyshop Manual





# Mazda RX-7 Bodyshop Manual

## FOREWORD

This bodyshop manual is intended for use by technicians of Authorized Mazda Dealers to help them service and repair Mazda vehicles. It can also be useful to owners and operators of Mazda vehicles in performing limited repair and maintenance on Mazda vehicles.

For proper repair and maintenance, a thorough familiarization with this manual is important, and it should always be kept in a handy place for quick and easy reference.

All the contents of this manual, including drawings and specifications, are the latest available at the time of printing. As modifications affecting repair or maintenance occur, relevant information supplementary to this volume will be made available at Mazda dealers. This manual should be kept up-to-date.

Mazda Motor Corporation reserves the right to alter the specifications and contents of this manual without obligation or advance notice.

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**Mazda Motor Corporation  
HIROSHIMA, JAPAN**

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SERVICE PRECAUTIONS

Safety Precautions

Protective shoes and gloves should always be worn. Use heat-resistant protective covers to protect glass and seats from heat or sparks.



Welding glasses



Ear protectors



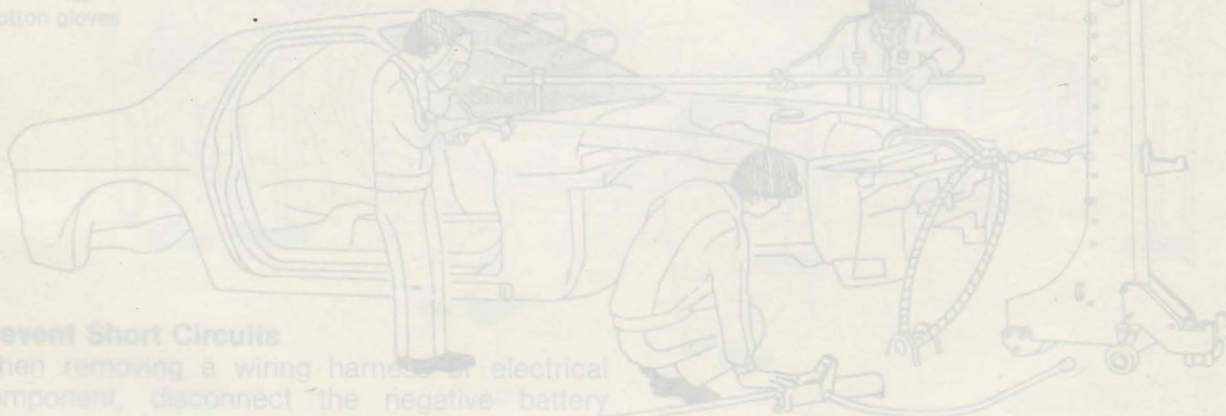
Welding gloves



Cotton gloves

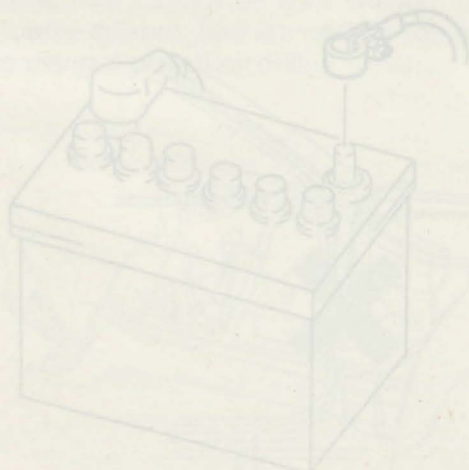
# GENERAL SERVICE INFORMATION

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**Prevent Short Circuits**

When removing a wiring harness or electrical component, disconnect the negative battery cable.



**Use Of Pulling Equipment**  
When using pulling equipment, keep away from the pulling area and use safety wires to prevent accidents.

## GENERAL SERVICE INFORMATION

### GENERAL SERVICE INFORMATION

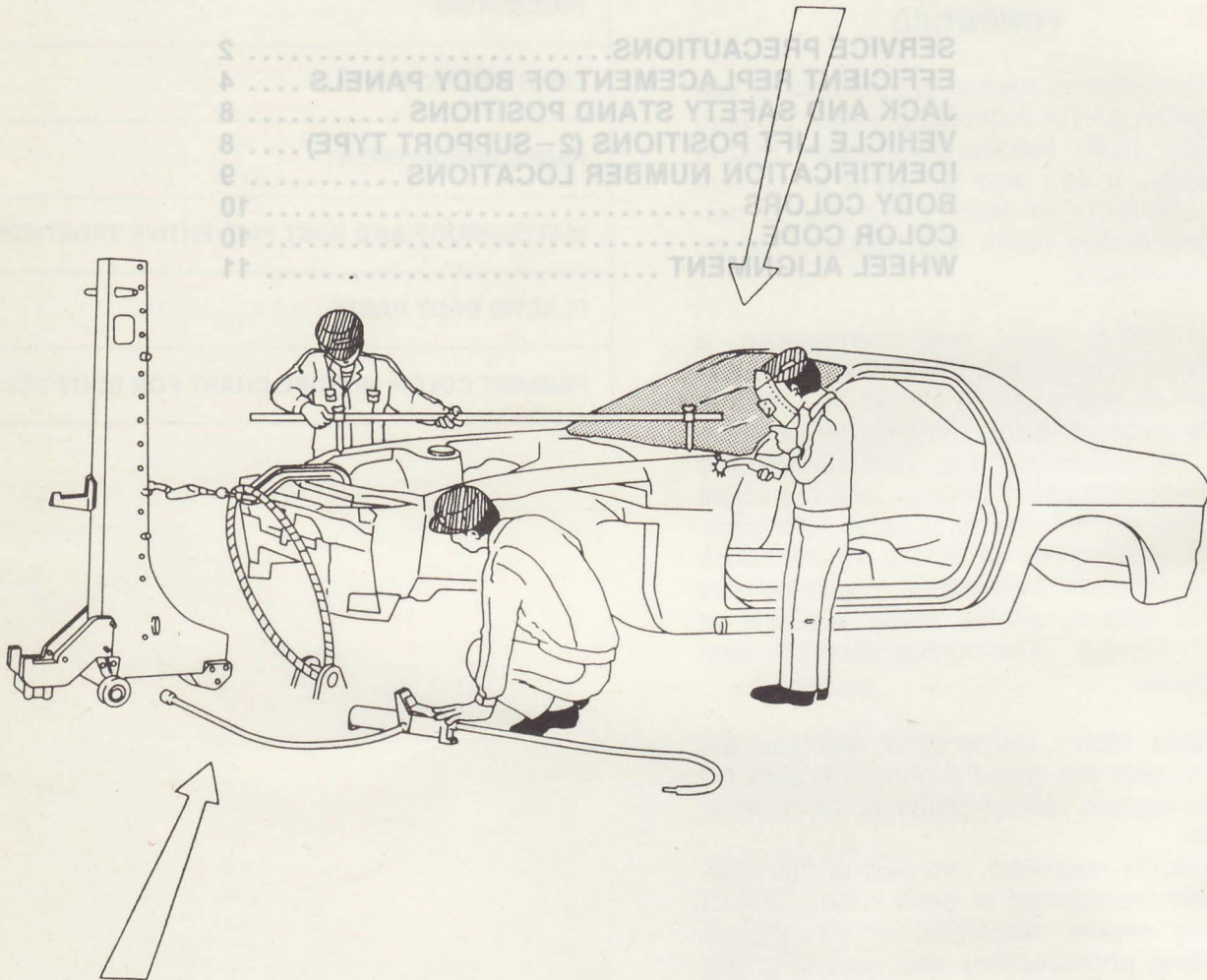
#### SERVICE PRECAUTIONS

##### Arrangement Of Workshop

Arrangement of the workshop is important for safe and efficient work.

##### Vehicle Protection

1. Use seat covers and floor covers.
2. Use heat-resistant protective covers to protect glass areas and seats from heat or sparks during welding.
3. Protect items such as moldings, garnishes, and ornaments with tape when welding.



##### Use Of Pulling Equipment

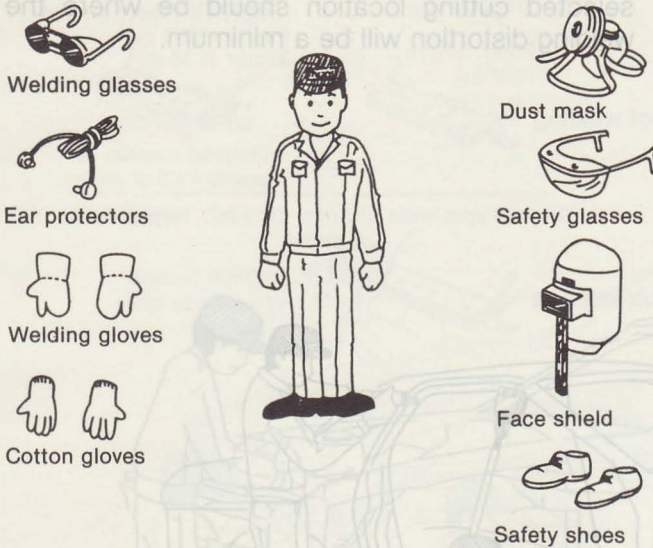
When using pulling equipment, keep away from the pulling area and use safety wires to prevent accidents.

# GENERAL SERVICE INFORMATION

## SERVICE PRECAUTIONS

### Safety Precautions

Protective head covering and safety shoes should always be worn. Depending upon the nature of the work, gloves, safety glasses, ear protectors, face shield, etc., should also be used.



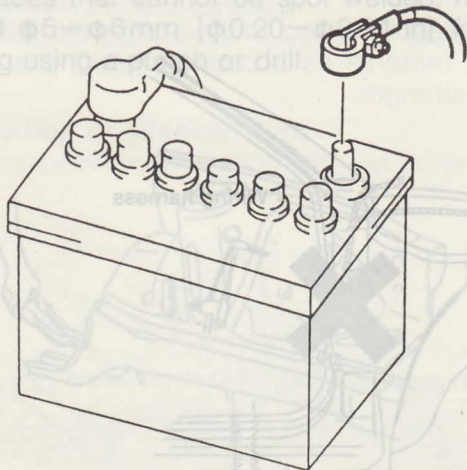
### Remove Dangerous Articles

Remove the fuel tank before using an open flame in that area. Plug connection piping to prevent fuel leakage.



### Prevent Short Circuits

When removing a wiring harness or electrical component, disconnect the negative battery cable.



### Rough cutting of new parts

For cut-and-join areas, allow for an overlap of 30-50 mm (1.18-1.97 in.) with remaining area of the damaged panel.

Remove of associated parts  
Protect moldings, garnishes, and ornaments with tape when removing associated parts.

Rough-cutting of damaged panel  
Verify that there are no parts (such as pipes, hoses, wiring harness, etc.) nearby or on the opposite side of a panel which could be damaged by heat.

For cut-and-join areas, allow for an overlap of 30-50 mm (1.18-1.97 in.) and then roughly cut the damaged panel.

New part rough cut location

## GENERAL SERVICE INFORMATION

### EFFICIENT REPLACEMENT OF BODY PANELS

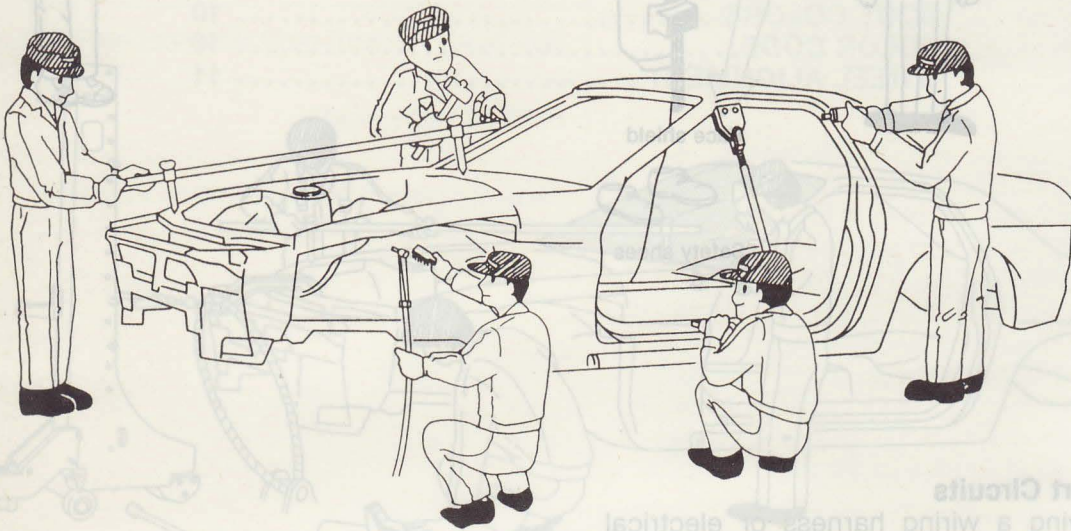
#### Removal

##### Body measurements

Before removal or rough cutting, first measure the body at and around the damaged area against the standard reference dimension specifications. If there is deformation, use frame repair equipment to make a rough correction.

##### Prevent of body deformation

Use a clamp or a jack for removal and reinforce at and around the rough-cutting location to prevent deformation of the body.



##### Removal of associated parts

Protect moldings, garnishes, and ornaments with tape when removing associated parts.

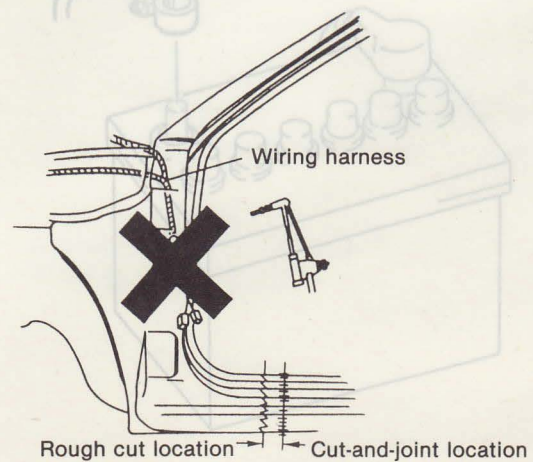
##### Rough-cutting of damaged panel

Verify that there are no parts (such as pipes, hoses, wiring harness, etc.) nearby or on the opposite side of a panel which could be damaged by heat.

For cut-and-join areas, allow for an overlap of 30–50mm {1.18–1.97 in} and then roughly cut the damaged panel.

##### Selection of cut-and-join locations

For parts where complete replacement is not feasible, careful cutting and joining operations should be followed. If the location to be cut is a flat area where there is no reinforcement, the selected cutting location should be where the welding distortion will be a minimum.



# GENERAL SERVICE INFORMATION

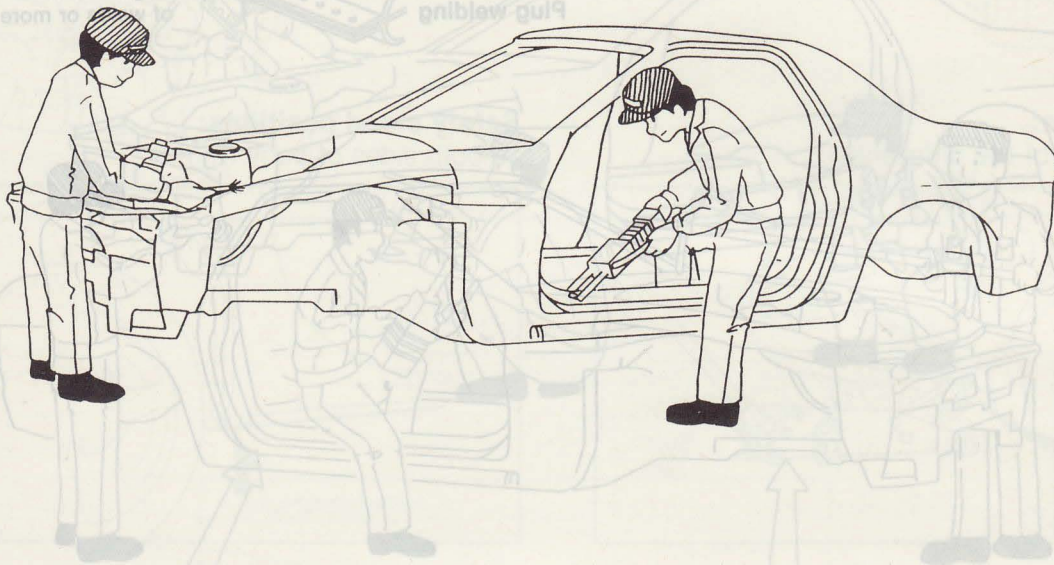
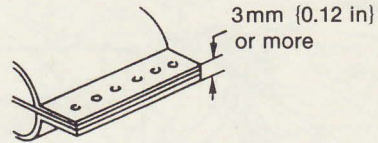
## Installation Preparations

### Application of weld-through primer

For treatment against corrosion, remove the paint, grease, and other material from the portion of the new part and body to be welded, and apply weld-through primer.

### Determination of welding method

If the total thickness at the area to be welded is 3mm {0.12 in} or more, use a CO<sub>2</sub> gas shielded-arc welder to make the plug welds.

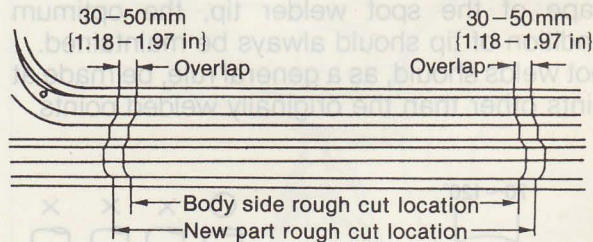
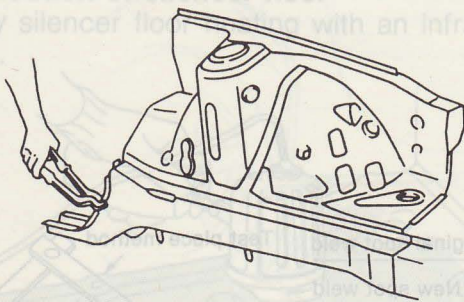


### Making holes for plugwelding

For places that cannot be spot welded, make a hole of  $\phi 5 - \phi 6$ mm { $\phi 0.20 - \phi 0.24$  in} for plug welding using a punch or drill.

### Rough cutting of new parts

For cut-and-join areas, allow for an overlap of 30–50mm {1.18–1.97 in} with remaining area in a body side and then rough cut the new part.





# GENERAL SERVICE INFORMATION

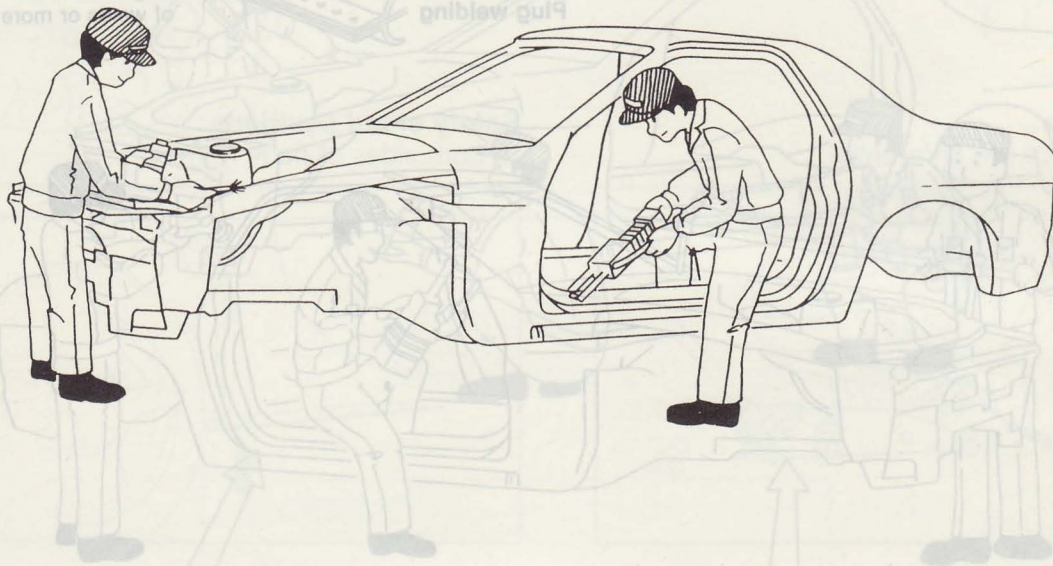
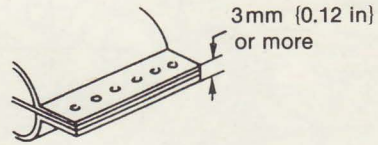
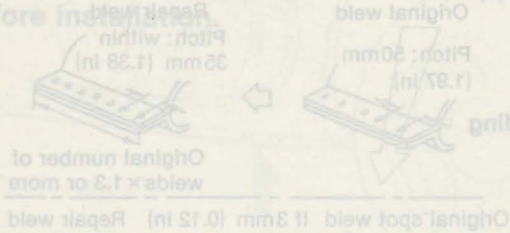
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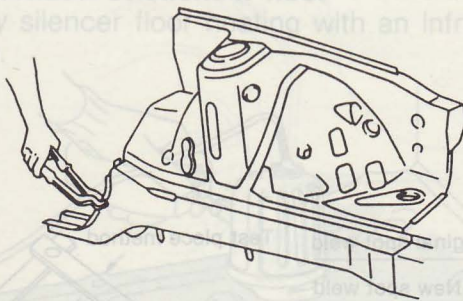
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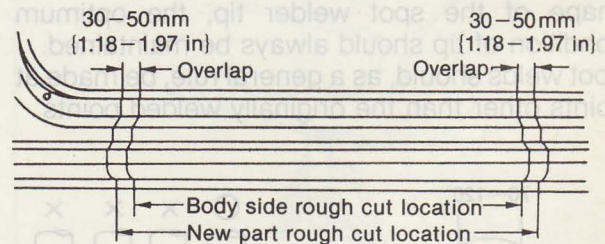
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# GENERAL SERVICE INFORMATION

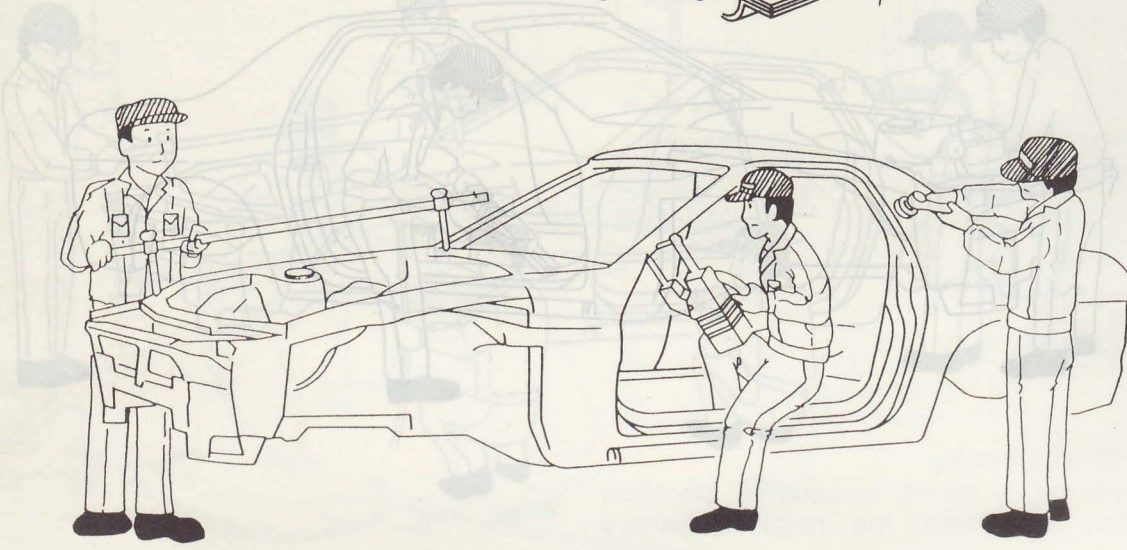
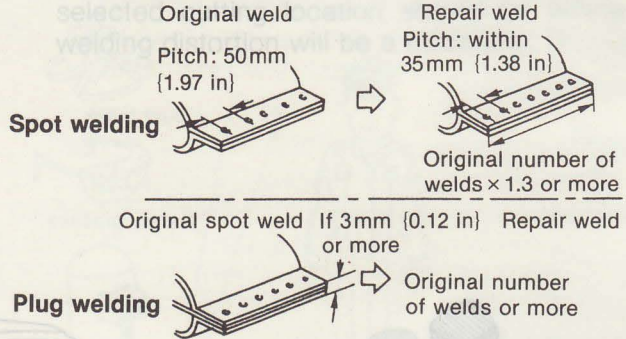
## Installation

### Checking preweld measurements and matching

- Align to the standard reference dimensions, based upon the body dimensions illustration, so that new parts are installed in the correct position.

### Welding notes

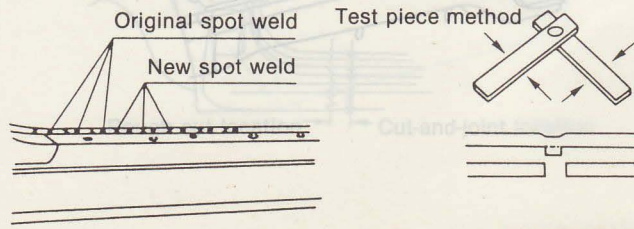
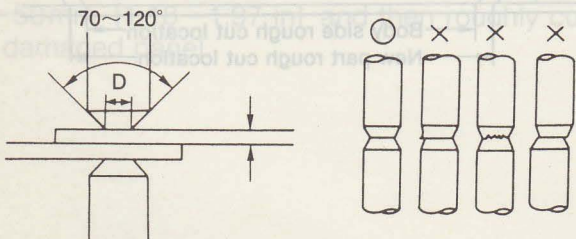
For the number of weld points, welding should be performed in accordance with the following reference standards.



### Spot welding notes

- The shape of the spot welder tip is  $D = (2 \times t) + 3$ . If the upper panel thickness is different from that of the under panel, adjust to the thinner one.
- Because the weld strength is affected by the shape of the spot welder tip, the optimum condition of tip should always be maintained.
- Spot welds should, as a general rule, be made at points other than the originally welded points.

- Before spot welding, make a trial weld using the same material as a body panel to check the weld strength.



Nugget diameter:  $\frac{4}{5}$  of tip

## GENERAL SERVICE INFORMATION

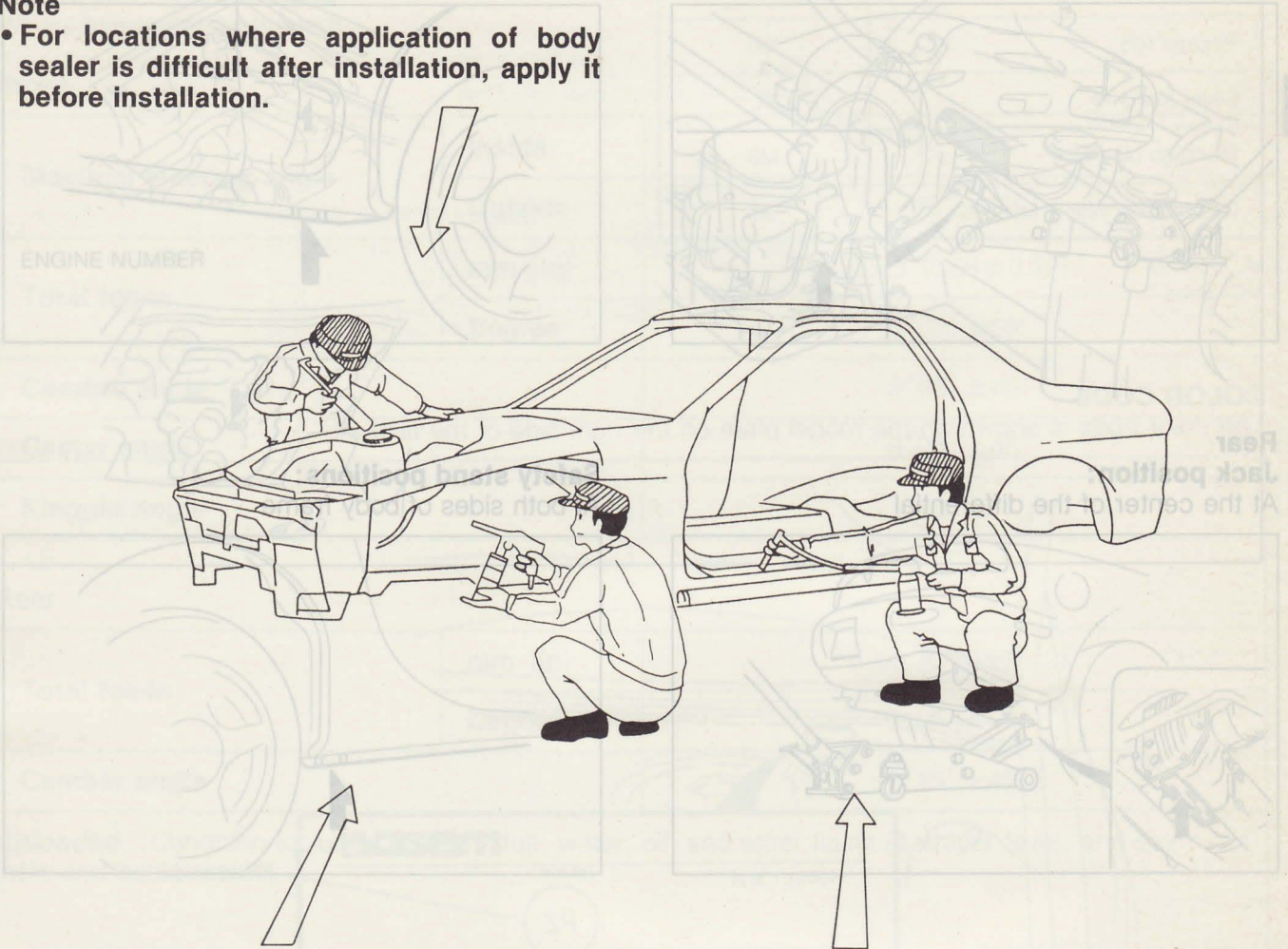
### Anticorrosion, Sound Insulation, And Vibration Insulation Treatment After Installation

#### Body sealing

Apply body sealer where necessary.

#### Note

- For locations where application of body sealer is difficult after installation, apply it before installation.

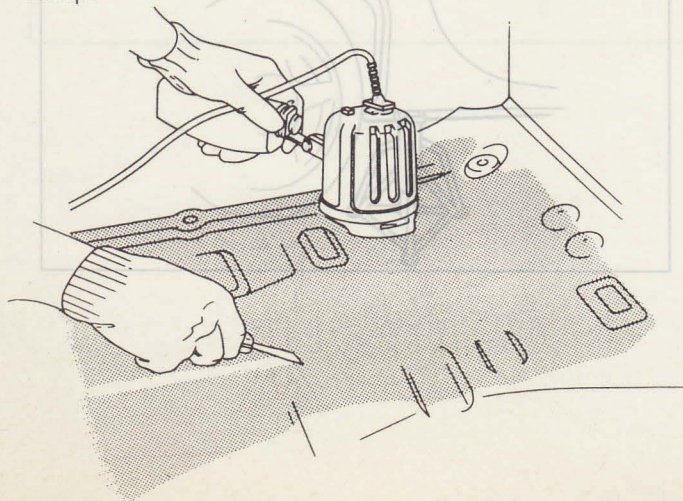


#### Application of rust inhibitor

Apply rust inhibitor (wax, oil, etc.) to the back of the welded areas.

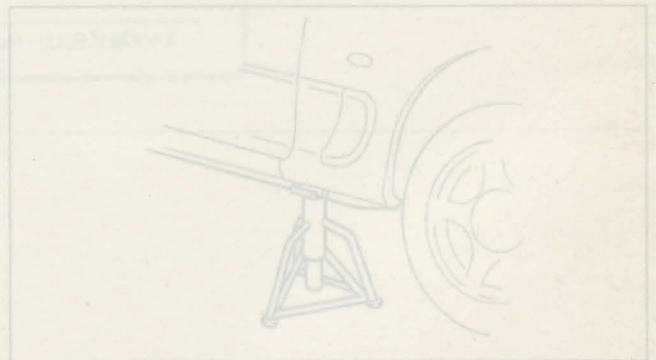
#### Application of silencer floor

Apply silencer floor heating with an infrared ray lamp.



#### Application of undercoating

Apply an undercoat to the required location of the body.



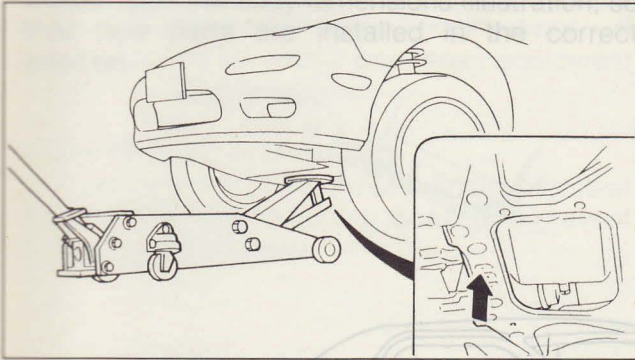
## GENERAL SERVICE INFORMATION

### JACK AND SAFETY STAND POSITIONS

#### Front

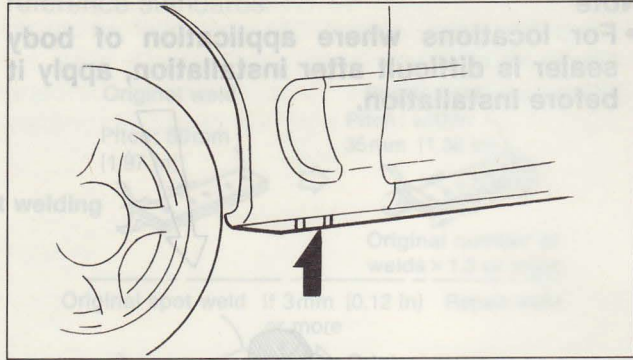
##### Jack position:

At center of crossmember



##### Safety stand positions:

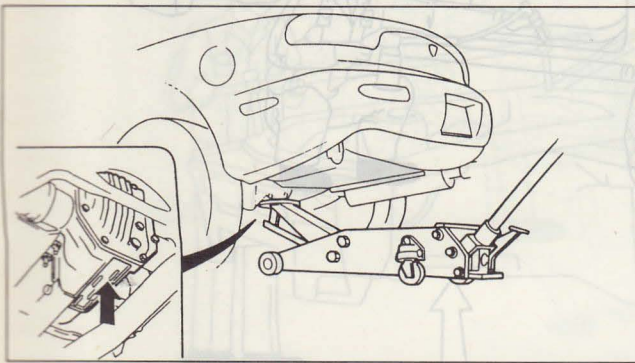
At both sides of body frame



#### Rear

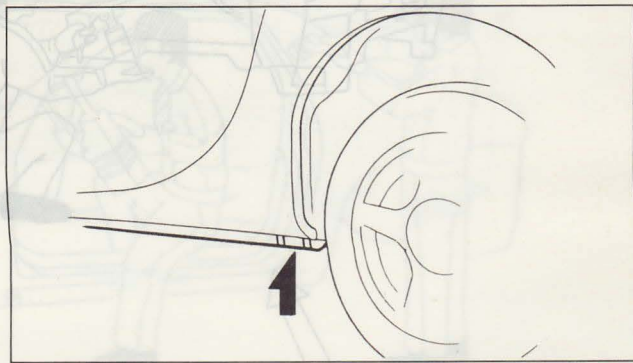
##### Jack position:

At the center of the differential



##### Safety stand positions:

At both sides of body frame

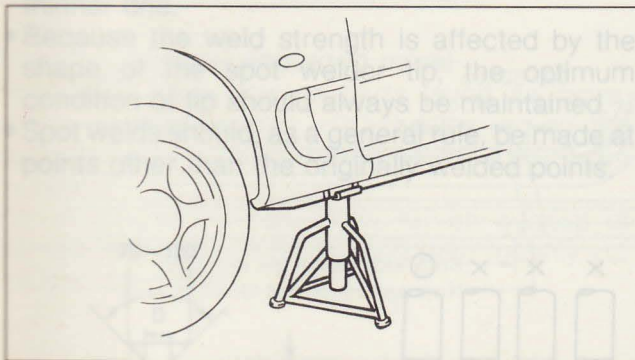


### VEHICLE LIFT (2-SUPPORT TYPE) POSITIONS

#### Front End

##### Frame

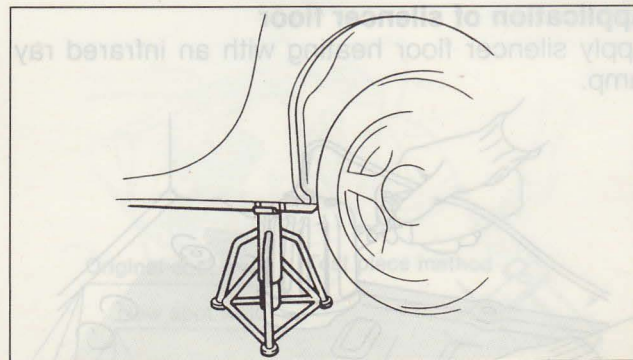
Side sills



#### Rear End

##### Frame

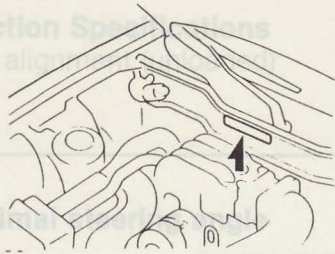
Side sills



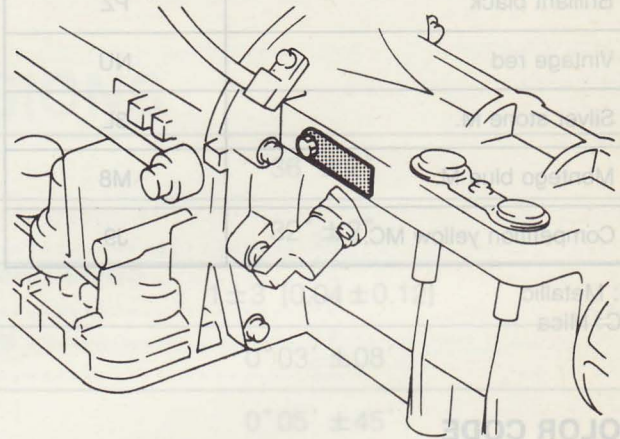
# GENERAL SERVICE INFORMATION

## IDENTIFICATION NUMBER LOCATIONS

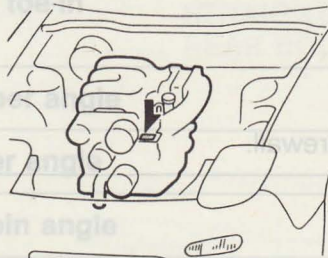
CHASSIS NUMBER



AUTOMATIC TRANSMISSION MODEL AND NUMBER



ENGINE NUMBER



Rear

Total toe-in

mm (in)

5 ± 3 (0.20 ± 0.12)

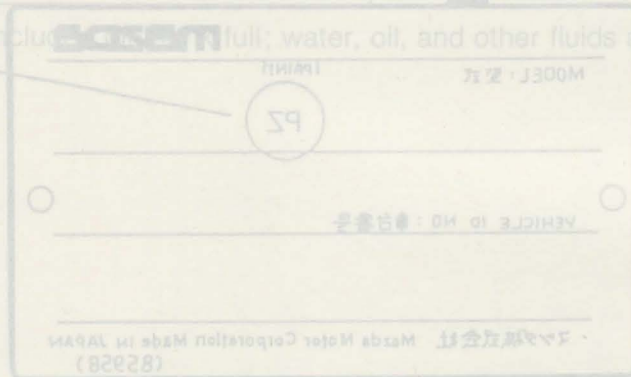
Degree

0° 55' ± 08'

Camber angle

1° 15' ± 45'

Unloaded ... Condition includes full fuel, water, oil, and other fluids at proper level, and spare tire, jack, and basic tools.



# GENERAL SERVICE INFORMATION

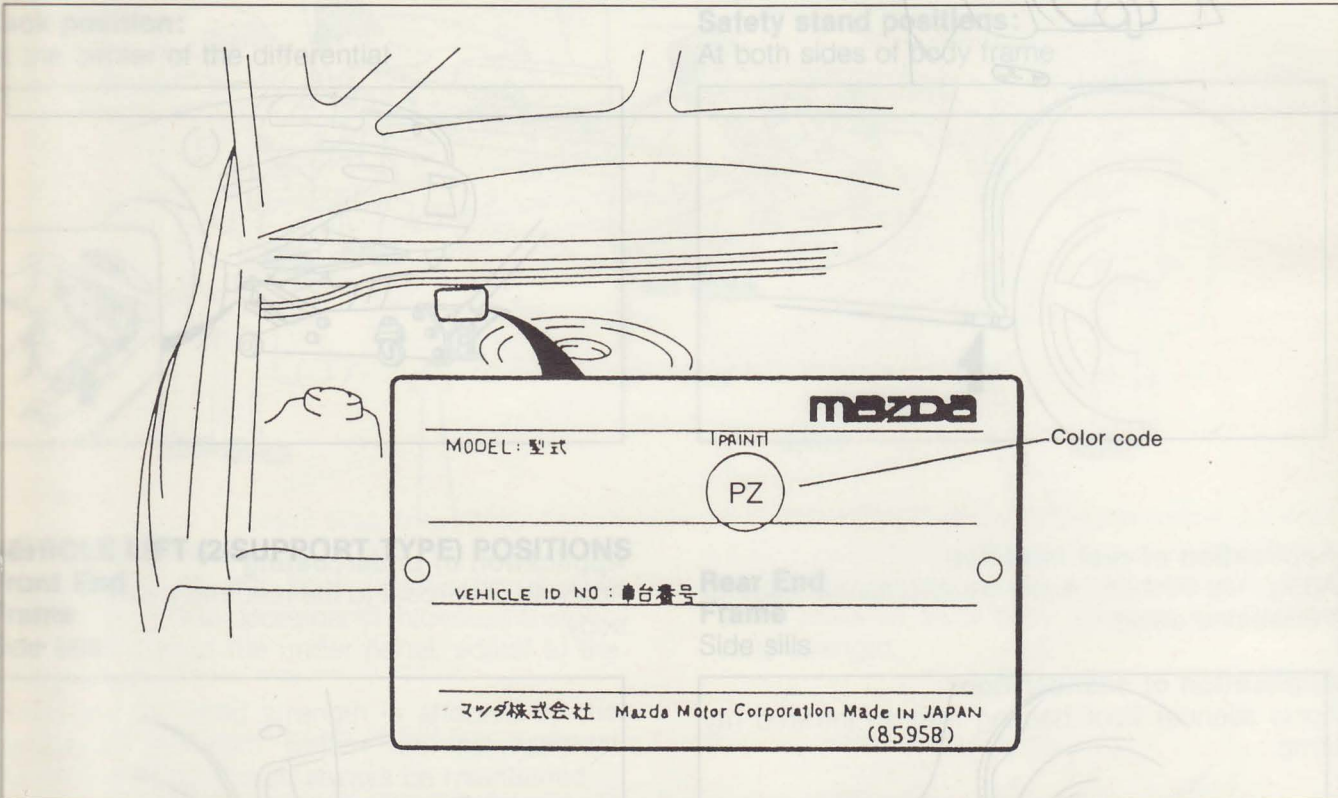
## BODY COLORS

Body color	Color code
Brilliant black	PZ
Vintage red	NU
Silver stone M.	3L
Montego blue M.	M8
Competition yellow MC.	J9

M: Metallic  
MC: Mica

## COLOR CODE

The color code is shown on the model plate on the right side of the firewall.



## GENERAL SERVICE INFORMATION

### WHEEL ALIGNMENT Inspection And Adjustment

Inspect and adjust both the front and the rear, wheel alignments according to the RX-7 workshop manual.

### Inspection Specifications

Wheel alignment (unloaded)

#### Front

<b>Maximal steering angle</b>	<b>Inside</b>	$36^{\circ} \pm 2^{\circ}$
	<b>Outside</b>	$32^{\circ} \pm 2^{\circ}$
<b>Total toe-in</b>	<b>mm {in}</b>	$1 \pm 3 \{0.04 \pm 0.12\}$
	<b>Degree</b>	$0^{\circ} 03' \pm 08'$
<b>Camber angle</b>		$0^{\circ} 05' \pm 45'$
<b>Caster angle</b>		$6^{\circ} 05' \pm 45'$
<b>Kingpin angle</b>		$13^{\circ} 55'$

#### Rear

<b>Total toe-in</b>	<b>mm {in}</b>	$5 \pm 3 \{0.20 \pm 0.12\}$
	<b>Degree</b>	$0^{\circ} 05' \pm 08'$
<b>Camber angle</b>		$1^{\circ} 15' \pm 45'$

**Unloaded**...Condition includes fuel tank full; water, oil, and other fluids at proper level; and spare tire, jack, and basic tool kit.

FLAT-PLANE DIMENSIONS  
Underbody

DIMENSIONS

BODY DIMENSIONS

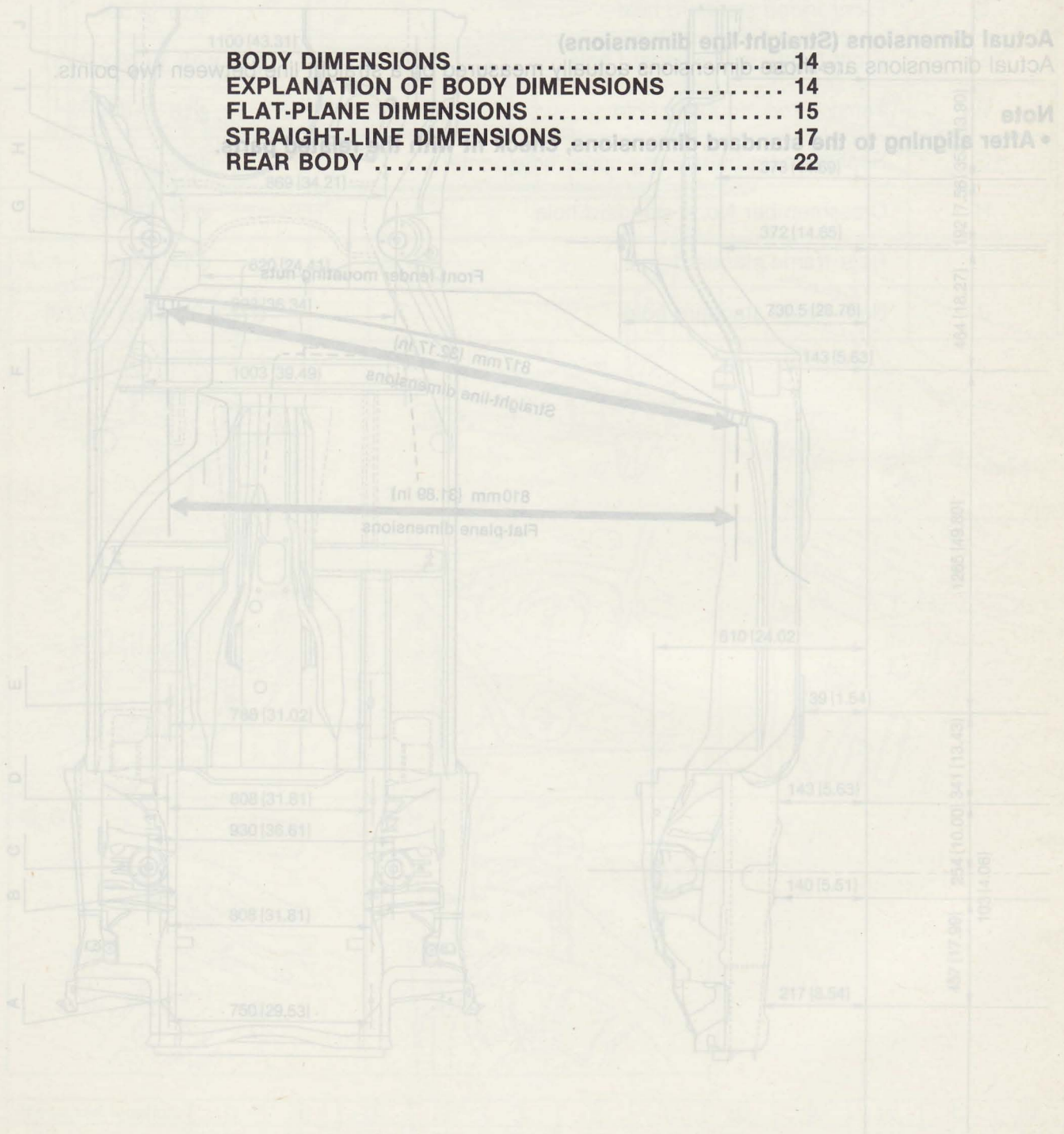
The precision of body dimensions determines the front alignment. It is important to obtain the dimensional accuracy when repairing a body.

EXPLANATION OF BODY DIMENSIONS

Flat-plane dimensions are those dimensions measured by projecting certain reference points (height may differ) onto a plane surface.

# DIMENSIONS

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EXPLANATION OF BODY DIMENSIONS .....	14
FLAT-PLANE DIMENSIONS .....	15
STRAIGHT-LINE DIMENSIONS .....	17
REAR BODY .....	22





# DIMENSIONS

## DIMENSIONS

### BODY DIMENSIONS

The precision of body dimensions determines the front alignment. It is important to obtain the dimensional accuracy when repairing a body.

### EXPLANATION OF BODY DIMENSIONS

#### Flat-plane dimensions

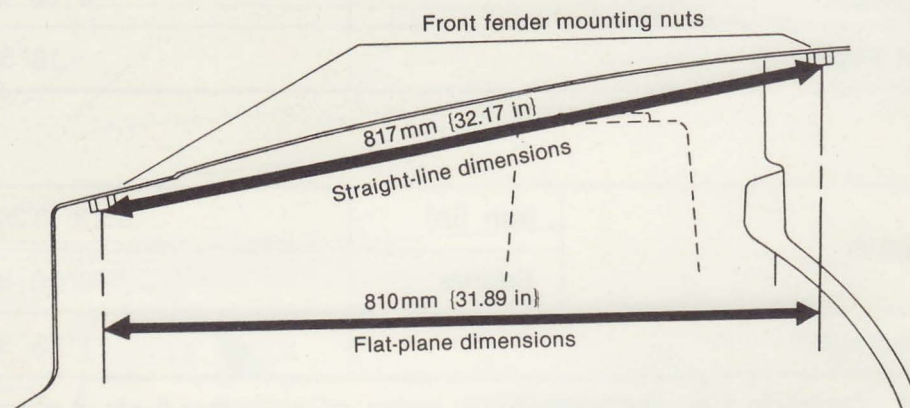
Flat-plane dimensions are those dimensions measured by projecting certain reference points (height may differ) onto a plane surface.

#### Actual dimensions (Straight-line dimensions)

Actual dimensions are those dimensions actually measured on a straight line between two points.

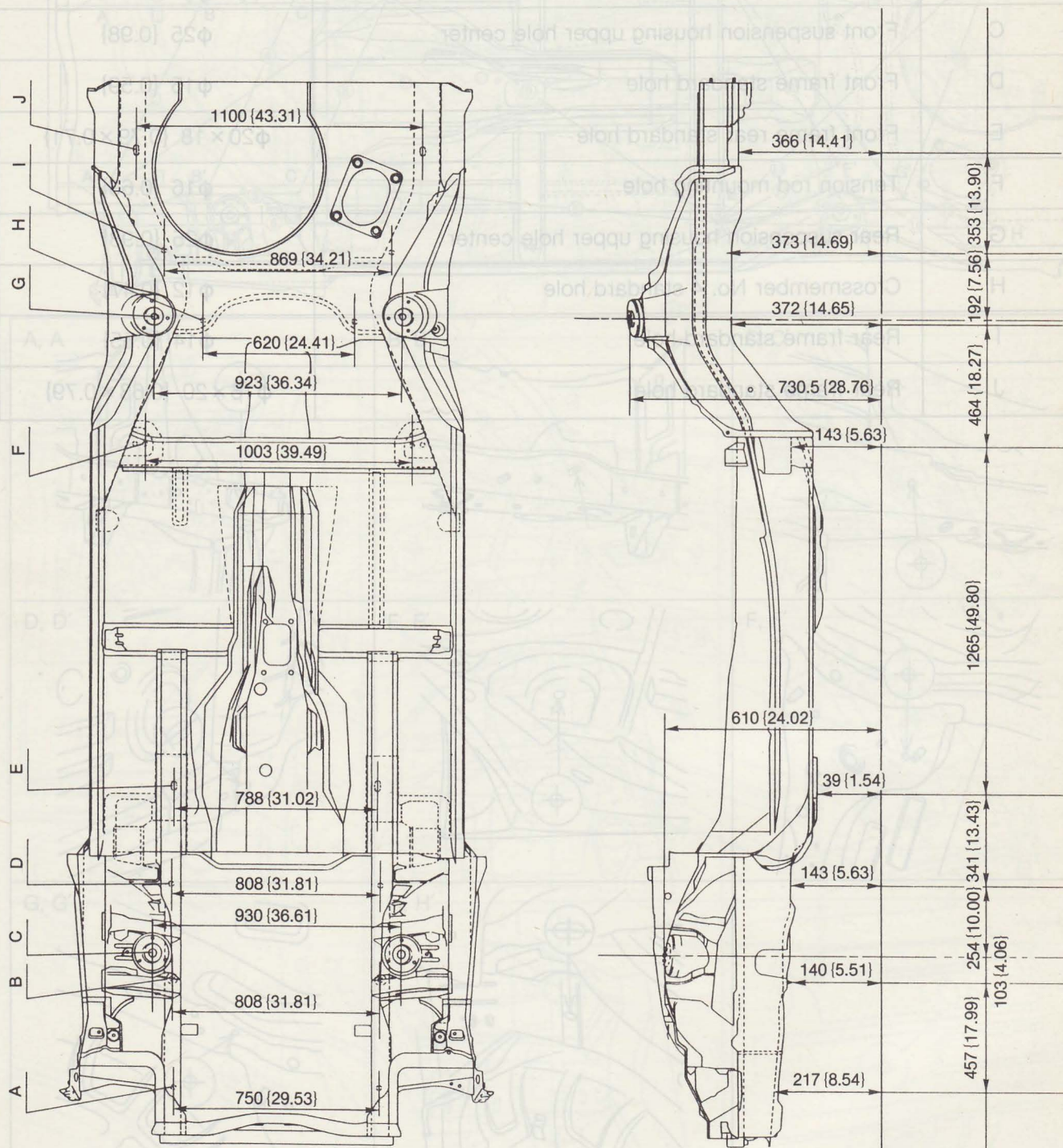
#### Note

- After aligning to the standard dimensions, check fit with the related parts.



# DIMENSIONS

## FLAT-PLANE DIMENSIONS Underbody

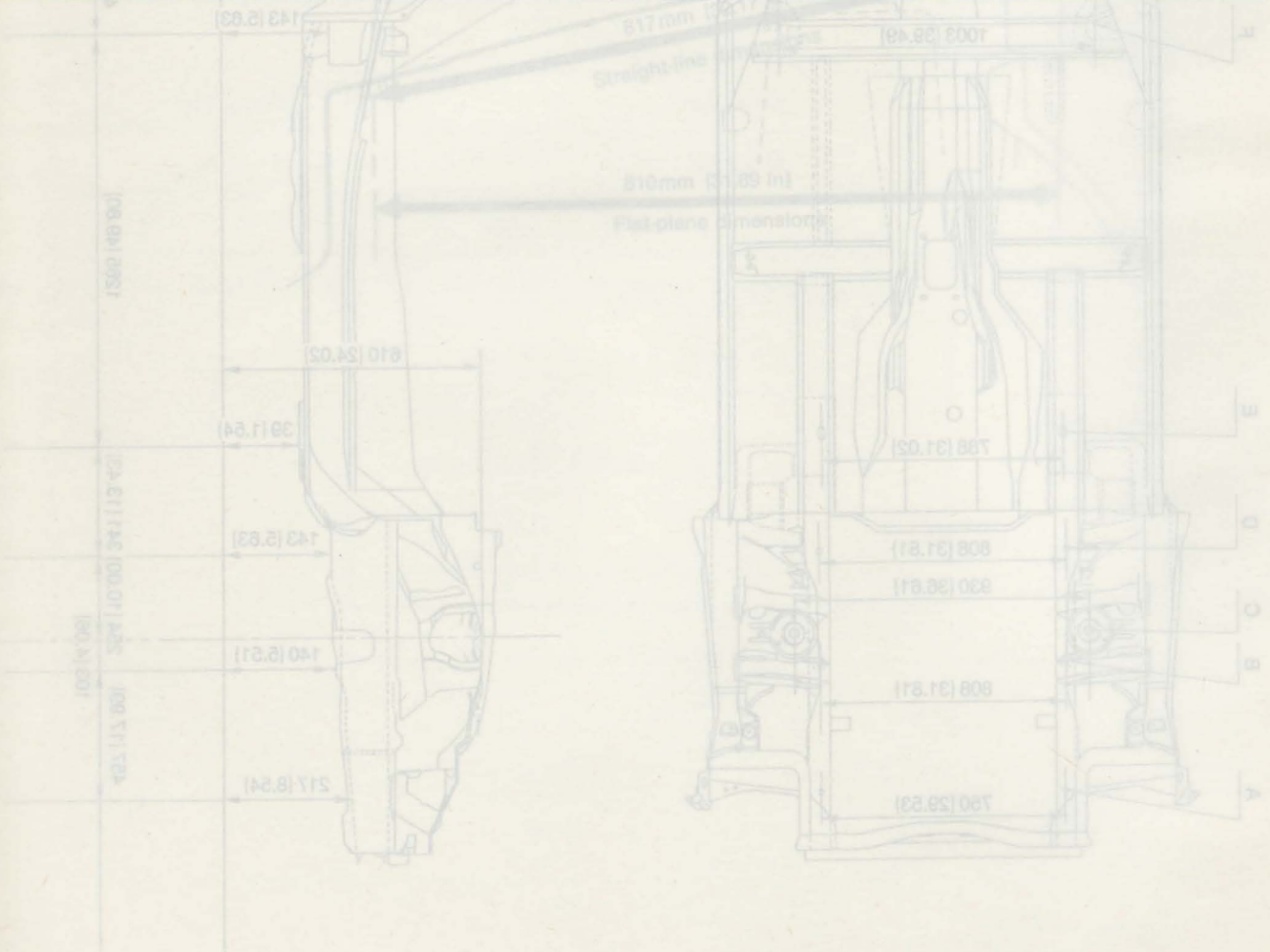


Measured location	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫
Dimensions mm (in)	465 [18.31]	906 [35.67]	1400 [55.12]	893 [34.76]	357 [14.06]	1109 [43.66]	357 [14.06]	874 [34.41]	1363 [53.66]	1272 [50.08]	1175 [46.26]	962 [37.87]
Measured location	⑬	⑭	⑮	⑯	⑰	⑱	⑲	⑲	⑲	⑲	⑲	⑲
Dimensions mm (in)	1484 [58.43]	533 [21.77]	711 [27.99]	1051 [41.38]	241 [9.49]	1045 [41.13]	373 [14.69]	143 [5.63]	140 [5.51]	217 [8.54]	457 [17.99]	103 [4.06]

II

## DIMENSIONS

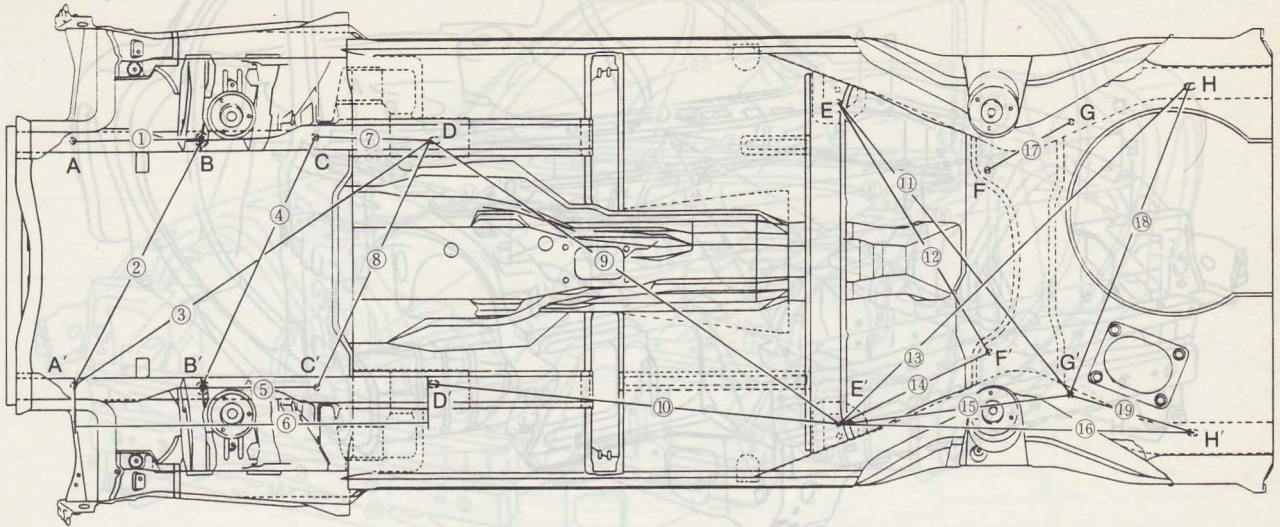
Point symbol	Designation	Hole dia. or nut mm {in}
A	Front side frame standard hole	φ10 {0.39}
B	Suspension member mounting bolt	M12 {0.47}
C	Front suspension housing upper hole center	φ25 {0.98}
D	Front frame standard hole	φ15 {0.59}
E	Front frame rear standard hole	φ20 × 18 {0.79 × 0.71}
F	Tension rod mounting hole	φ16 {0.63}
G	Rear suspension housing upper hole center	φ25 {0.98}
H	Crossmember No. 4 standard hole	φ12 {0.47}
I	Rear frame standard hole	φ14 {0.55}
J	Rear frame standard hole	φ16 × 20 {0.63 × 0.79}



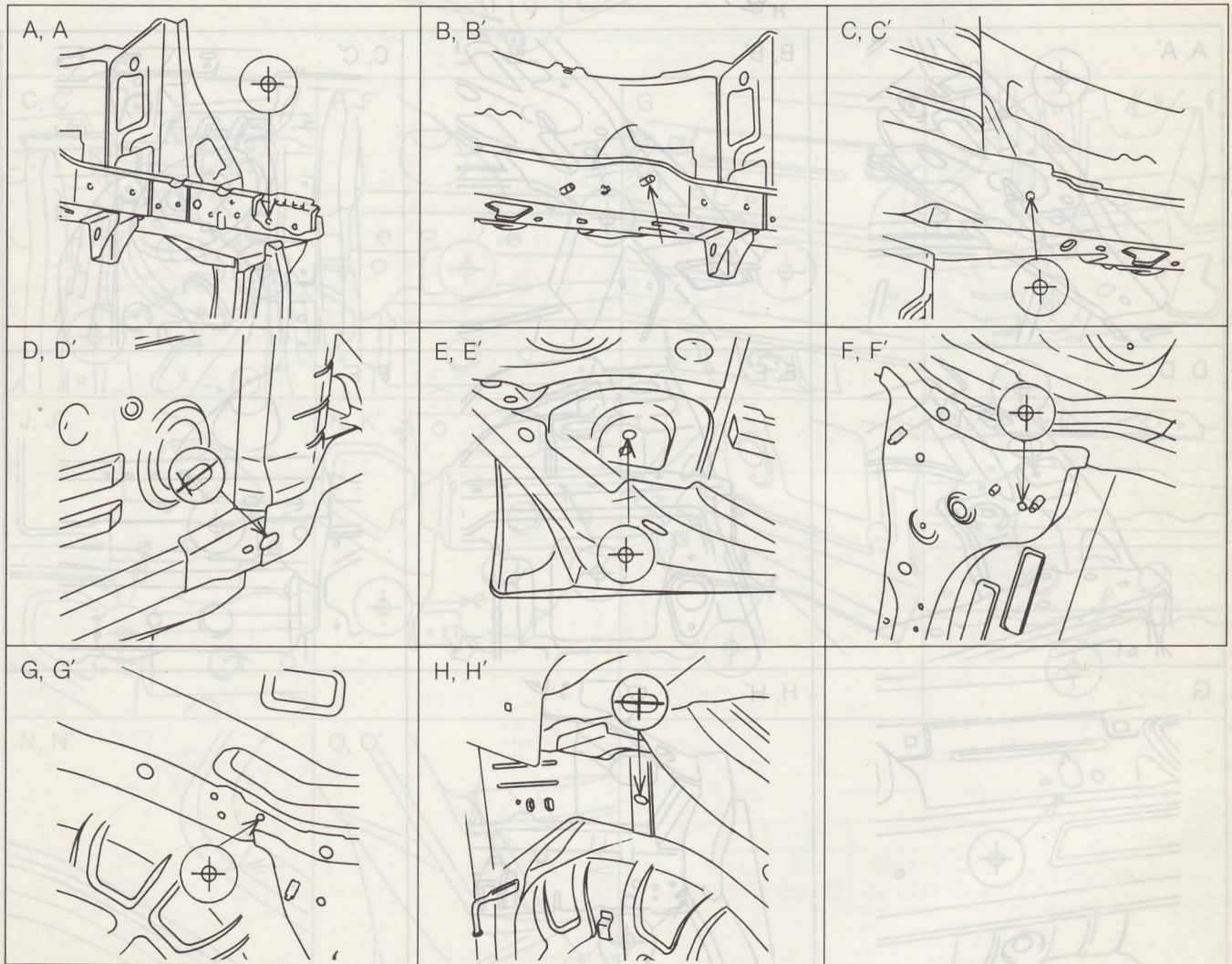
# DIMENSIONS

## STRAIGHT-LINE DIMENSIONS Under body

Front Body



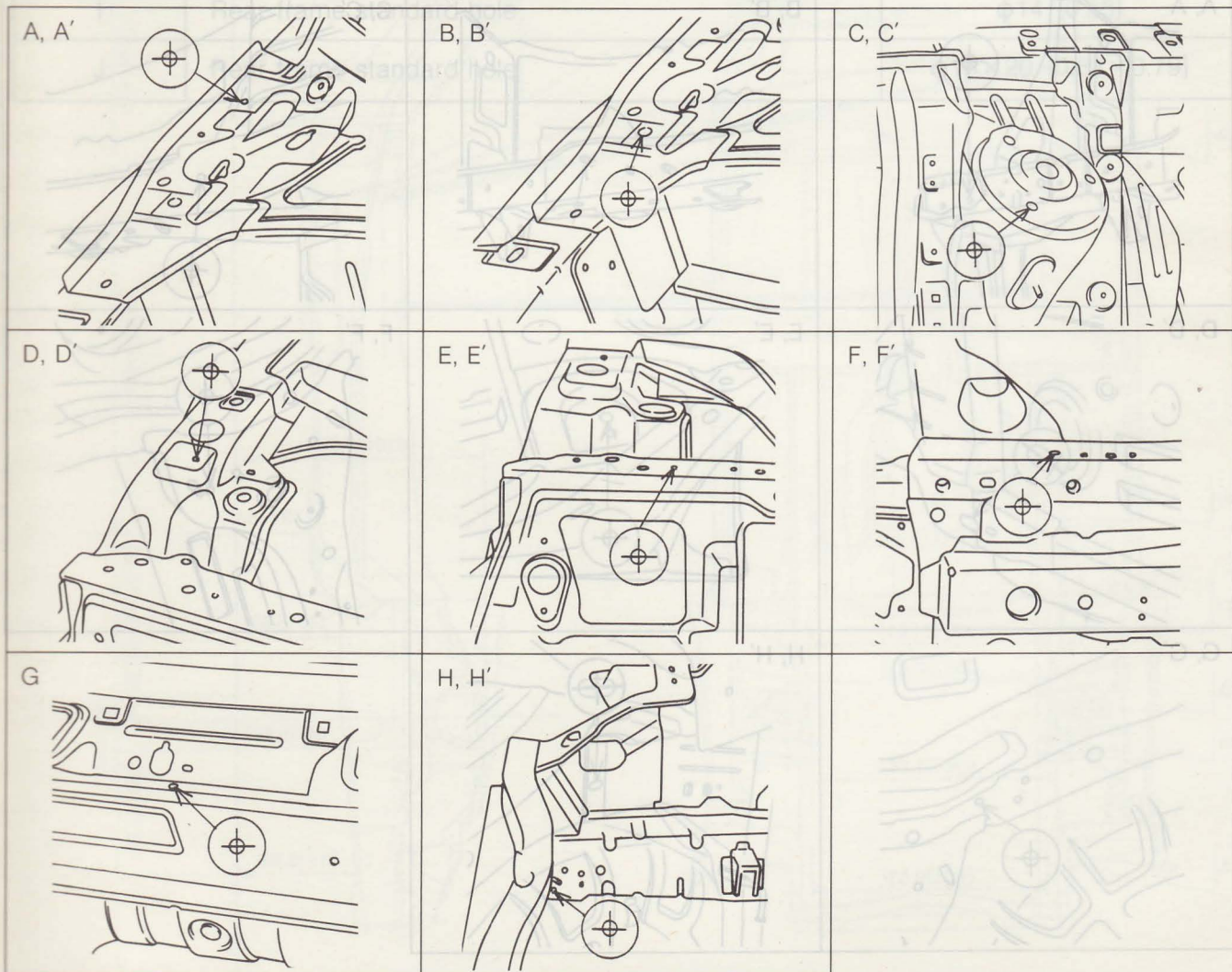
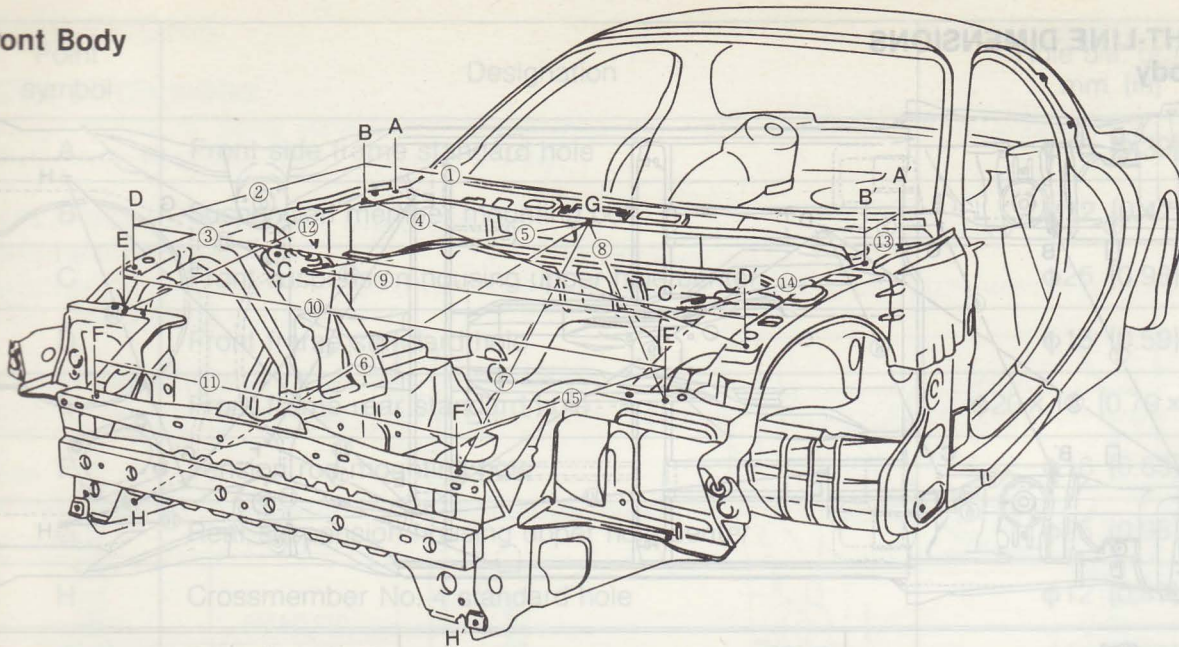
II



Measured location	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫
Dimensions mm (in)	465 {18.31}	906 {35.67}	1400 {55.12}	883 {34.76}	357 {14.06}	1169 {46.02}	357 {14.06}	874 {34.41}	1553 {61.14}	1272 {50.08}	1175 {46.26}	962 {37.87}
Measured location	⑬	⑭	⑮	⑯	⑰	⑱						
Dimensions mm (in)	1484 {58.43}	553 {21.77}	711 {27.99}	1051 {41.38}	241 {9.49}	1045 {41.14}	371 {14.61}					

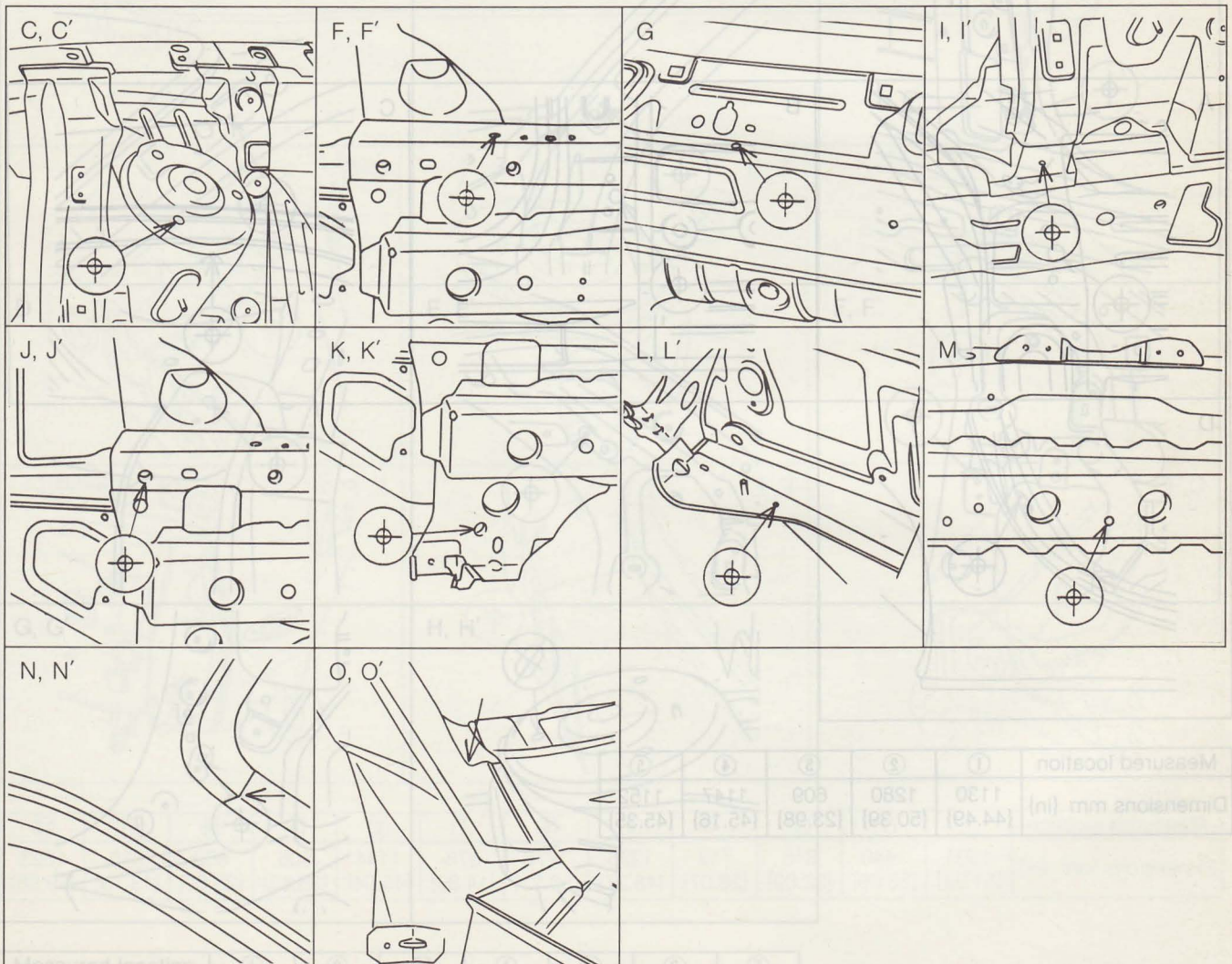
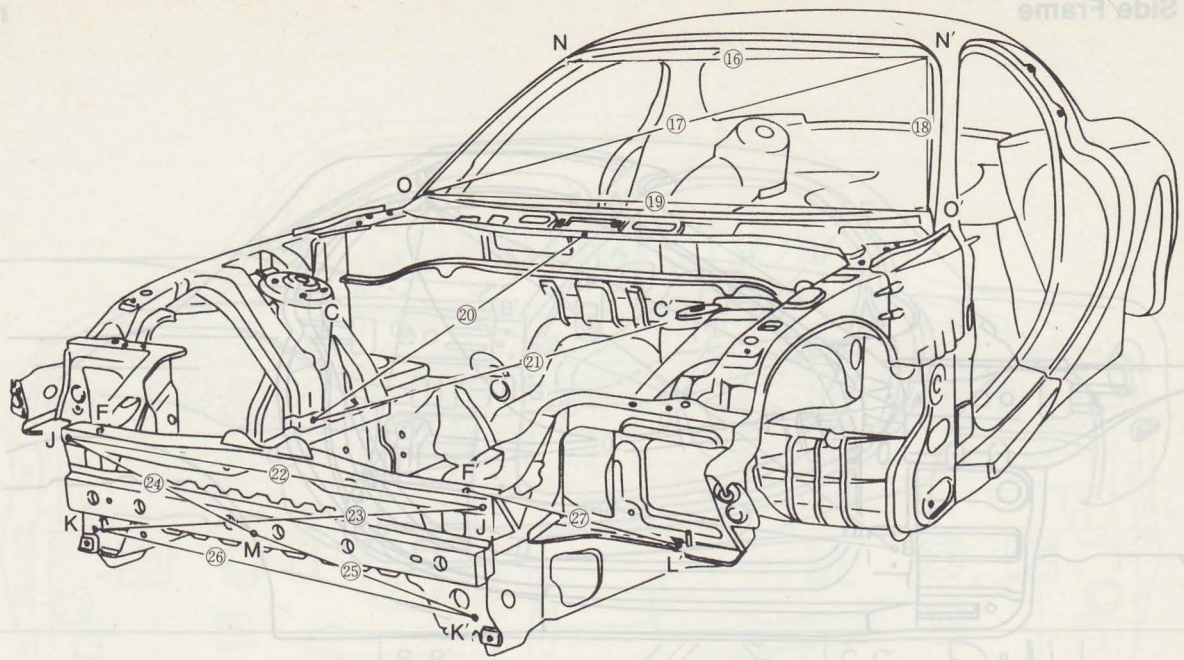
# DIMENSIONS

## Front Body



Measured location	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫
Dimensions mm [in]	1400 {55.12}	698 {27.48}	1329 {52.32}	1505 {59.25}	568 {22.36}	1107 {43.58}	1071 {42.17}	956 {37.64}	840 {33.07}	1180 {46.46}	650 {25.59}	813 {32.01}
Measured location	⑬	⑭	⑮									
Dimensions mm [in]	166 {6.54}	502 {19.76}	378 {14.88}									

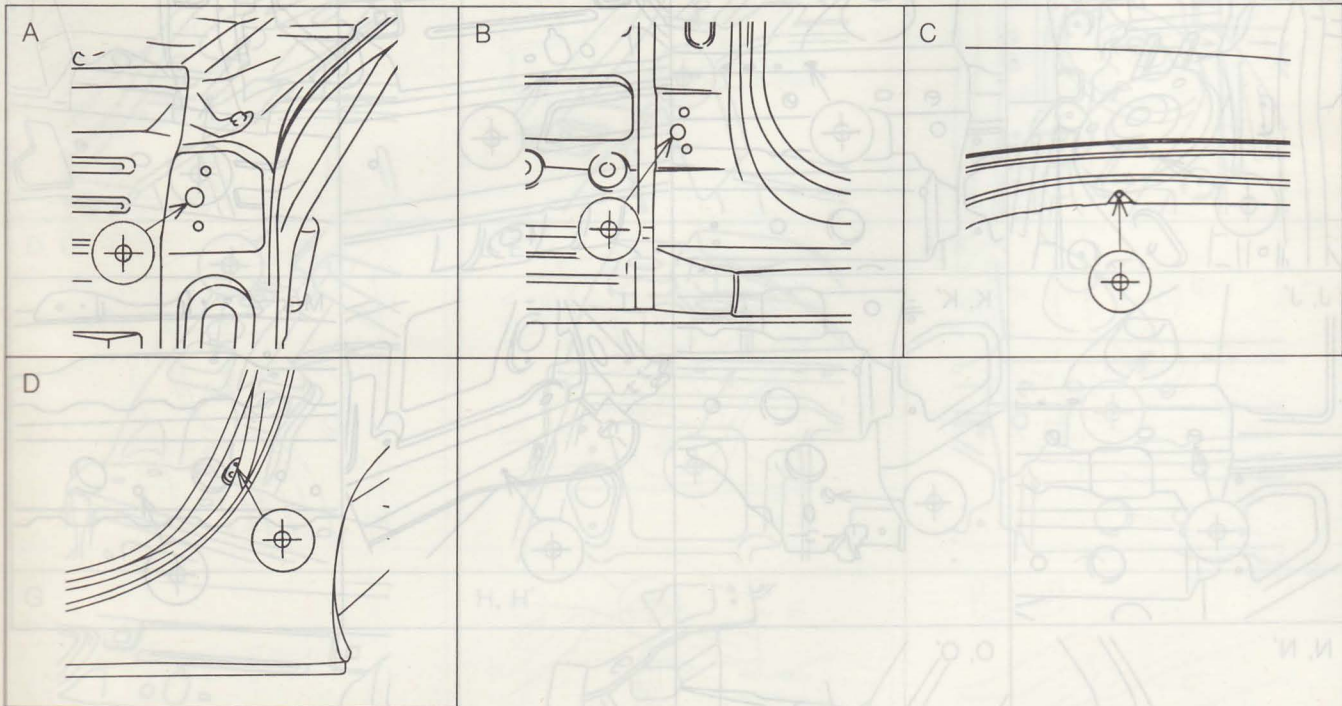
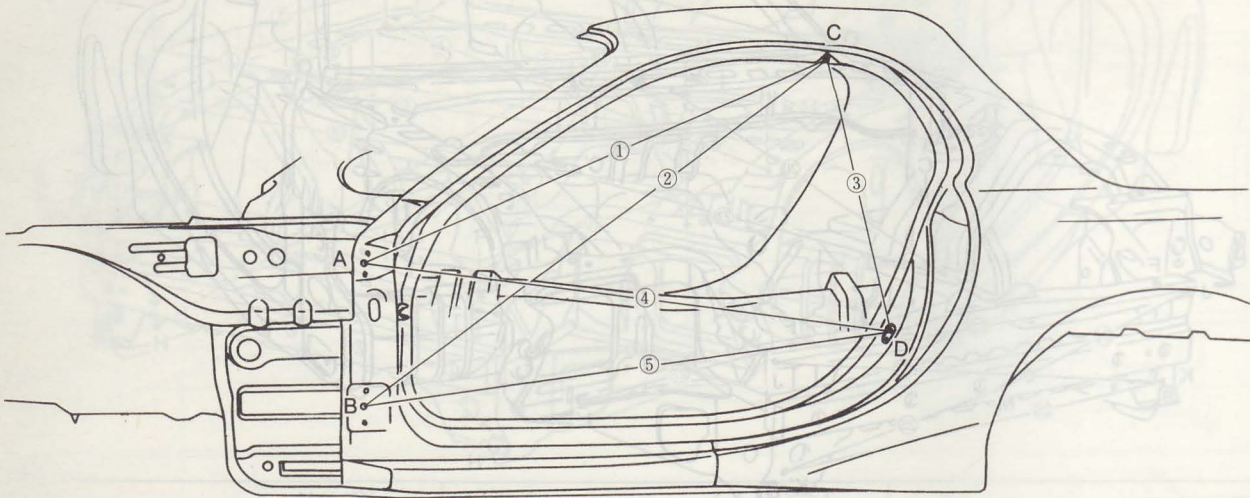
# DIMENSIONS



Measured location	①⑥	①⑦	①⑧	①⑨	②①	②②	②③	②④	②⑤	②⑥	②⑦	
Dimensions mm {in}	1089 {42.87}	1317 {51.85}	563 {22.17}	1302 {51.26}	676 {26.61}	824 {32.44}	874 {34.41}	855 {33.66}	447 {17.60}	410 {16.14}	800 {31.50}	384 {15.12}

# DIMENSIONS

## Cabin Side Frame

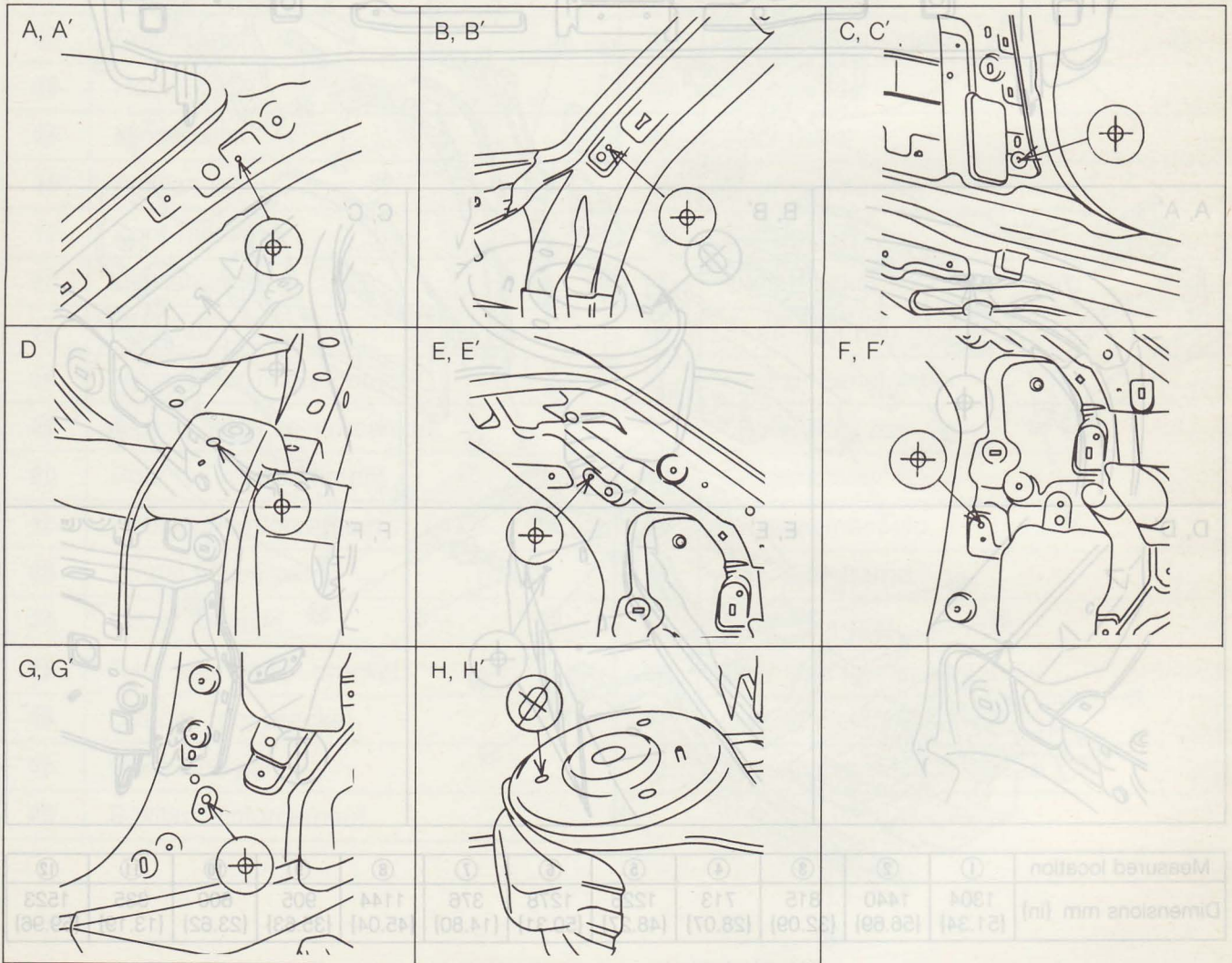
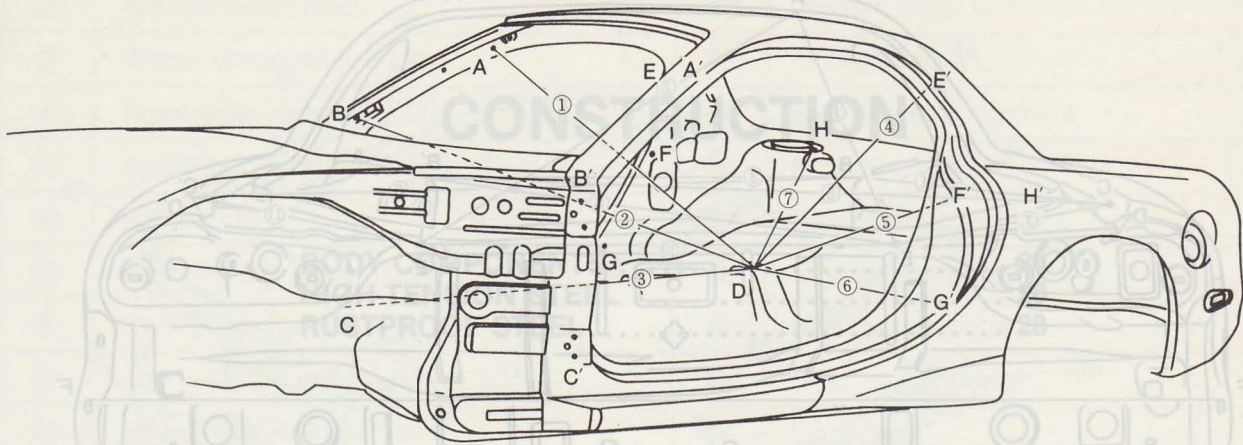


Measured location	①	②	③	④	⑤
Dimensions mm {in}	1130 {44.49}	1280 {50.39}	609 {23.98}	1147 {45.16}	1152 {45.35}

# DIMENSIONS

Room

REAR BODY

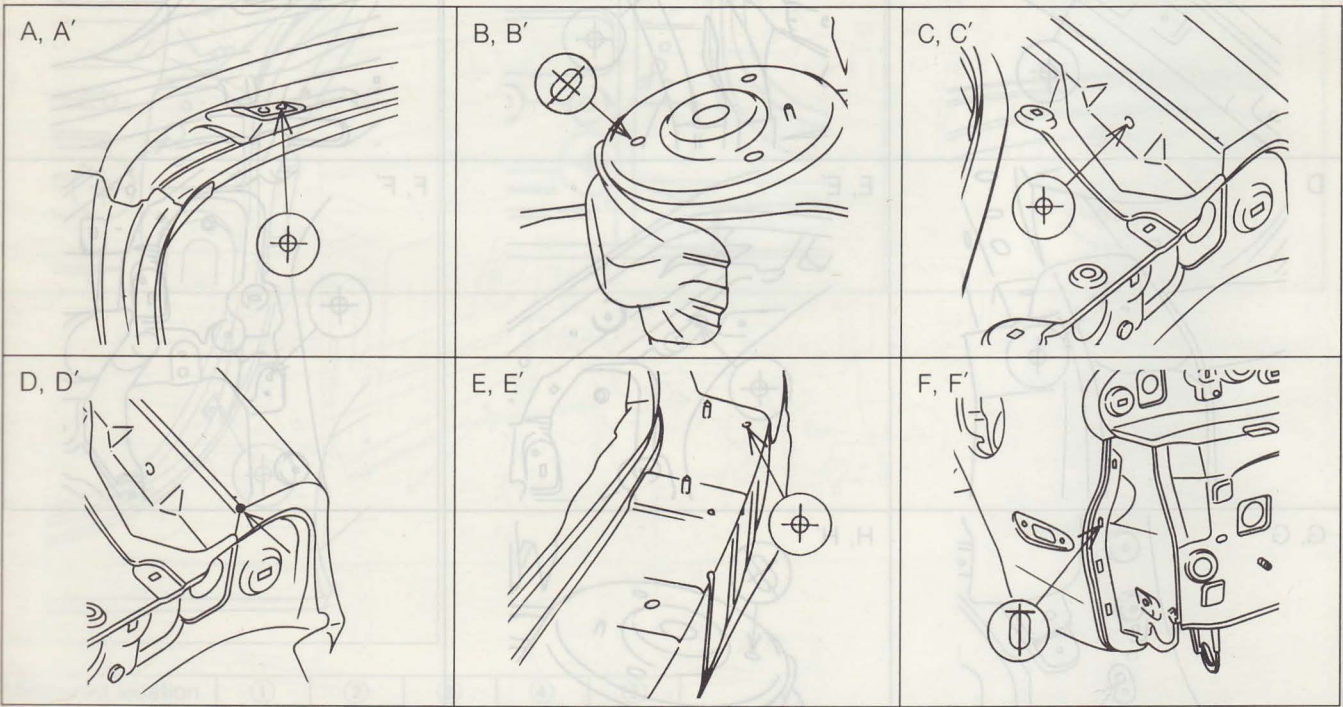
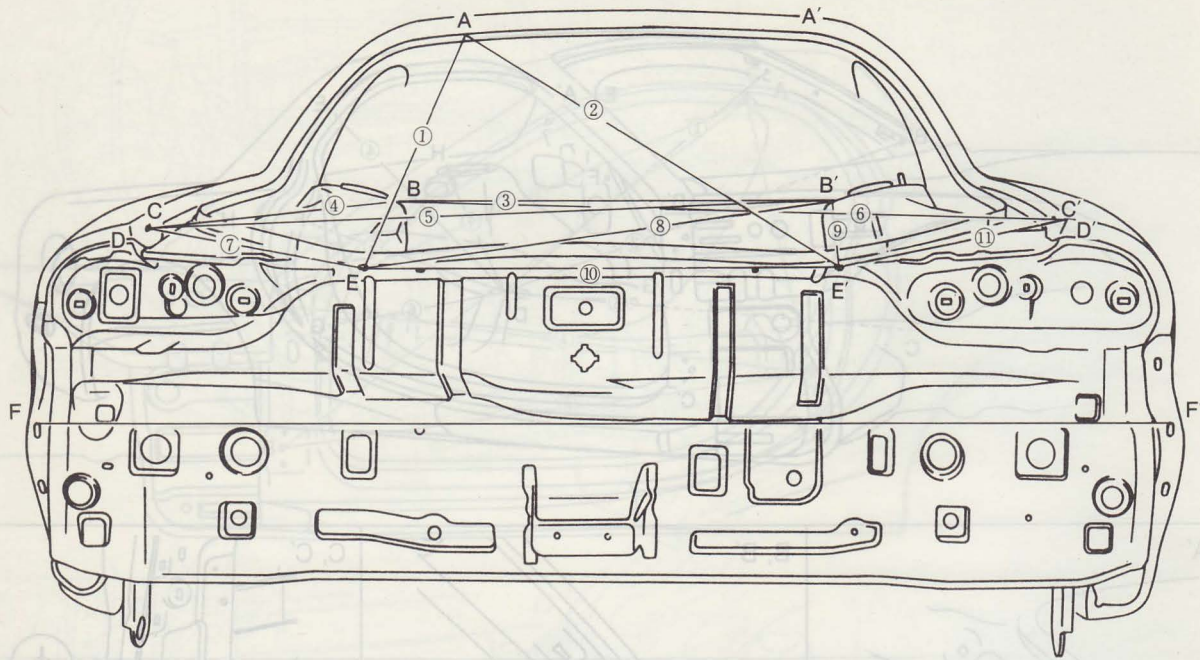


Measured location	①	②	③	④	⑤	⑥	⑦
Dimensions mm {in}	993 {39.09}	1242 {48.90}	1293 {50.91}	773 {30.43}	728 {28.66}	690 {27.17}	741 {29.17}



# DIMENSIONS

## REAR BODY



Measured location	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫
Dimensions mm {in}	1304 {51.34}	1440 {56.69}	815 {32.09}	713 {28.07}	1226 {48.27}	1278 {50.31}	376 {14.80}	1144 {45.04}	905 {35.63}	600 {23.62}	335 {13.19}	1523 {59.96}

# CONSTRUCTION

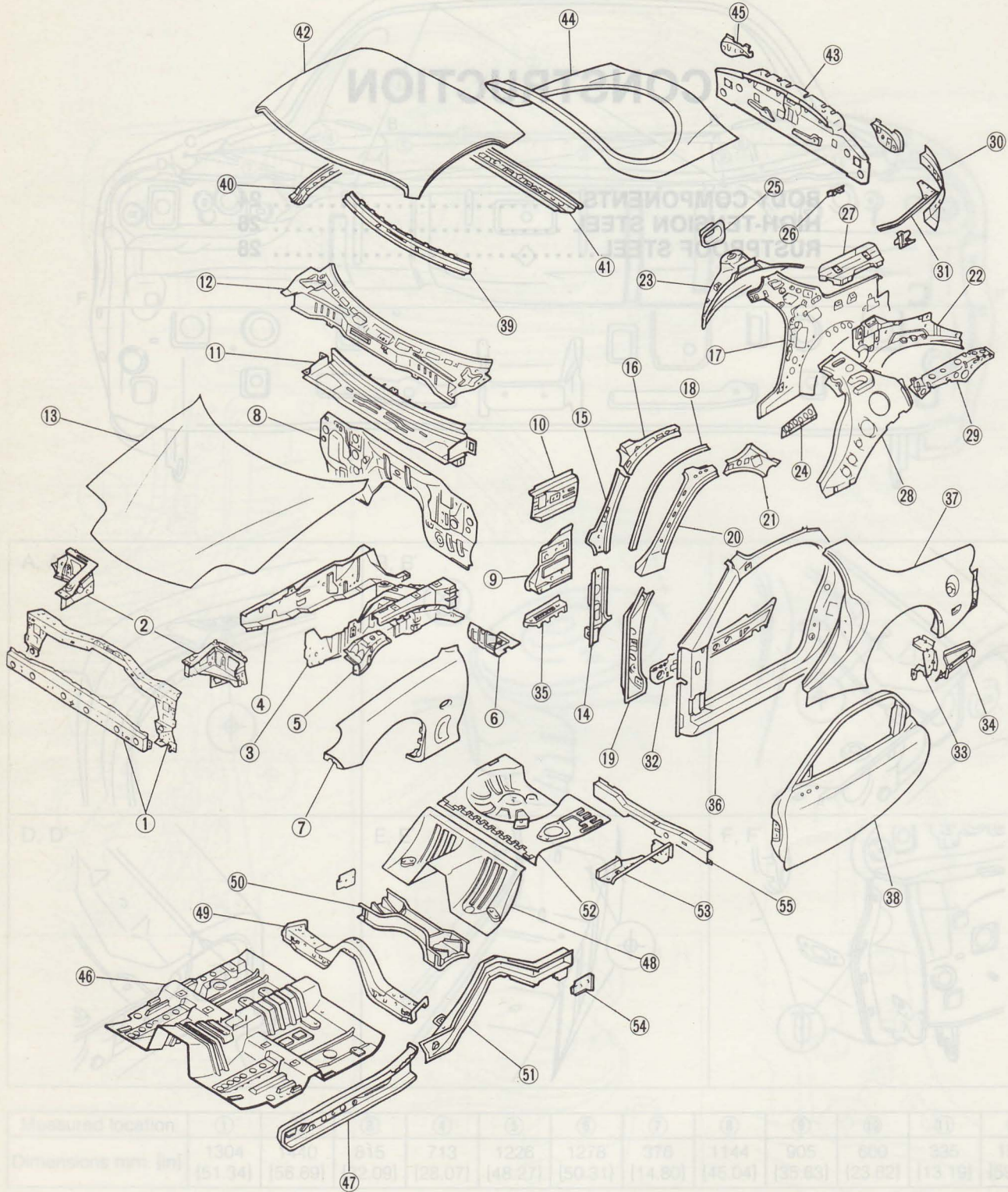
<b>BODY COMPONENTS</b> .....	<b>24</b>
<b>HIGH-TENSION STEEL</b> .....	<b>26</b>
<b>RUSTPROOF STEEL</b> .....	<b>28</b>

No.	Part Name	No.	Part Name
①	Crossmember No. 1	29	Beltline reinforcement
②	Shroud side panel	30	B-pillar, inner C
③	Wheel apron panel	31	Coner plate
④	Front side frame	32	B-pillar reinforcement
⑤	Apron reinforcement	33	B-pillar gusset
⑥	Traverse bar	34	Floor reinforcement
⑦	Fender	35	Rear fender panel
⑧	Dash board	36	Dash panel
⑨	Cowl side	37	Trunk lid
⑩	Trunk lid reinforcement	38	Trunk lid reinforcement
⑪	Cowl nose	39	Trunk lid reinforcement
⑫	Hood	40	Trunk lid reinforcement
⑬	Lang pillar	41	Trunk lid reinforcement
⑭	A-pillar, inner	42	Trunk lid reinforcement
⑮	Roof rail, inner	43	Trunk lid reinforcement
⑯	B-pillar, inner	44	Trunk lid reinforcement
⑰	Roof rail	45	Trunk lid reinforcement
⑱	Hinge pillar reinforcement	46	Trunk lid reinforcement
⑲	B-pillar inner reinforcement	47	Trunk lid reinforcement
21	Roof rail reinforcement	48	Trunk lid reinforcement
22	Housing reinforcement	49	Trunk lid reinforcement
23	Wheel house panel	50	Trunk lid reinforcement
24	Coner junction	51	Trunk lid reinforcement
25	Rear seat wheel bracket	52	Trunk lid reinforcement
26	Quarter-trim bracket	53	Trunk lid reinforcement
27	Floor side panel	54	Trunk lid reinforcement
28	B-pillar reinforcement	55	Trunk lid reinforcement

# CONSTRUCTION

## CONSTRUCTION

### BODY COMPONENTS

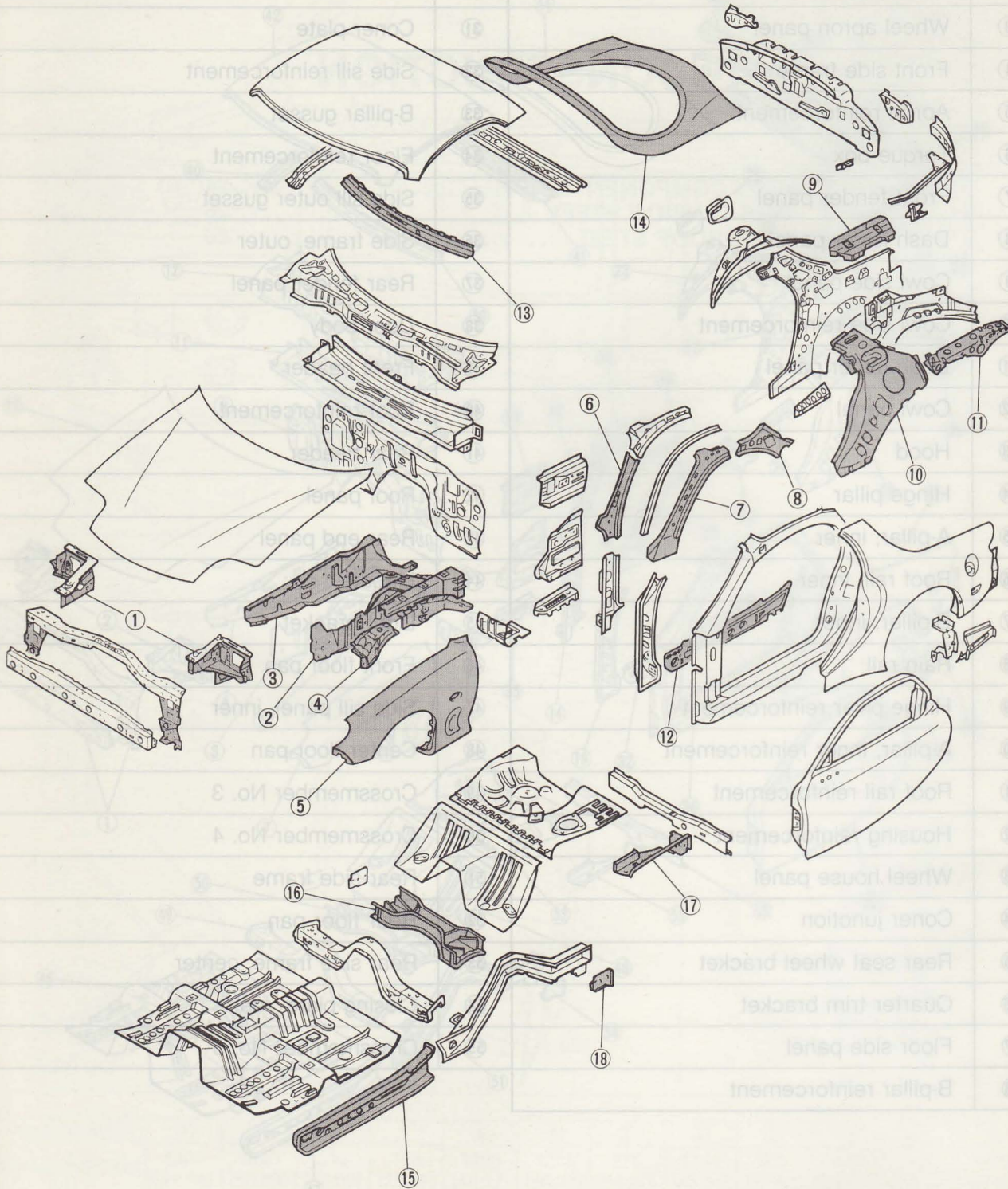


## CONSTRUCTION

No.	Part Name	No.	Part Name
①	Crossmember No. 1	②⑨	Beltline reinforcement
②	Shroud side panel	③⑩	B-pillar, inner C
③	Wheel apron panel	③①	Coner plate
④	Front side frame	③②	Side sill reinforcement
⑤	Apron reinforcement	③③	B-pillar gusset
⑥	Torque box	③④	Floor reinforcement
⑦	Front fender panel	③⑤	Side sill outer gusset
⑧	Dash lower panel	③⑥	Side frame, outer
⑨	Cowl side panel	③⑦	Rear fender panel
⑩	Cowl side reinforcement	③⑧	Door body
⑪	Dash upper panel	③⑨	Front header
⑫	Cowl panel	④⑩	Roof reinforcement
⑬	Hood	④①	Rear header
⑭	Hinge pillar	④②	Roof panel
⑮	A-pillar, inner	④③	Rear end panel
⑯	Roof rail, inner	④④	Liftgate
⑰	B-pillar, inner	④⑤	Light bracket
⑱	Rain rail	④⑥	Front floor pan
⑲	Hinge pillar reinforcement	④⑦	Side sill panel, inner
⑳	A-pillar, inner reinforcement	④⑧	Center floor pan
㉑	Roof rail reinforcement	④⑨	Crossmember No. 3
㉒	Housing reinforcement	⑤⑩	Crossmember No. 4
㉓	Wheel house panel	⑤①	Rear side frame
㉔	Coner junction	⑤②	Rear floor pan
㉕	Rear seat wheel bracket	⑤③	Rear side frame, center
㉖	Quarter trim bracket	⑤④	Closing plate, rear
㉗	Floor side panel	⑤⑤	Crossmember No. 5
㉘	B-pillar reinforcement		

# CONSTRUCTION

## HIGH-TENSION STEEL Structural View



## CONSTRUCTION

No.	Part Name	No.	Part Name
①	Shroud side panel	⑩	B-pillar reinforcement
②	Wheel apron panel	⑪	Beltline reinforcement
③	Front side frame	⑫	Side sill reinforcement
④	Apron reinforcement	⑬	Front header
⑤	Front fender panel	⑭	Liftgate
⑥	A-pillar, inner	⑮	Side sill panel, inner
⑦	A-pillar, inner reinforcement	⑯	Crossmember No. 4
⑧	Roof rail reinforcement	⑰	Rear side frame, center
⑨	Floor side panel	⑱	Closing plate, rear



III

# CONSTRUCTION

## RUSTPROOF STEEL Structural View



## CONSTRUCTION

No.	Part Name	No.	Part Name
①	Crossmember No. 1	⑱	Floor side panel
②	Shroud side panel	⑳	Coner plate
③	Wheel apron panel	㉑	Side sill reinforcement
④	Apron reinforcement	㉒	B-pillar gusset
⑤	Torque box	㉓	Side frame, outer
⑥	Front fender panel	㉔	Rear fender panel
⑦	Dash lower panel	㉕	Door body
⑧	Cowl side panel	㉖	Rear end panel
⑨	Cowl side reinforcement	㉗	Liftgate
⑩	Dash upper panel	㉘	Light bracket
⑪	Cowl panel	㉙	Front floor pan
⑫	B-pillar, inner	㉚	Side sill panel, inner
⑬	Rain rail	㉛	Center floor pan
⑭	Hinge pillar reinforcement	㉜	Crossmember No. 4
⑮	A-pillar, inner reinforcement	㉝	Rear side frame
⑯	Housing reinforcement	㉞	Rear floor pan
⑰	Wheel house panel	㉟	Rear side frame, center
⑱	Corner junction	㊱	Crossmember No. 5

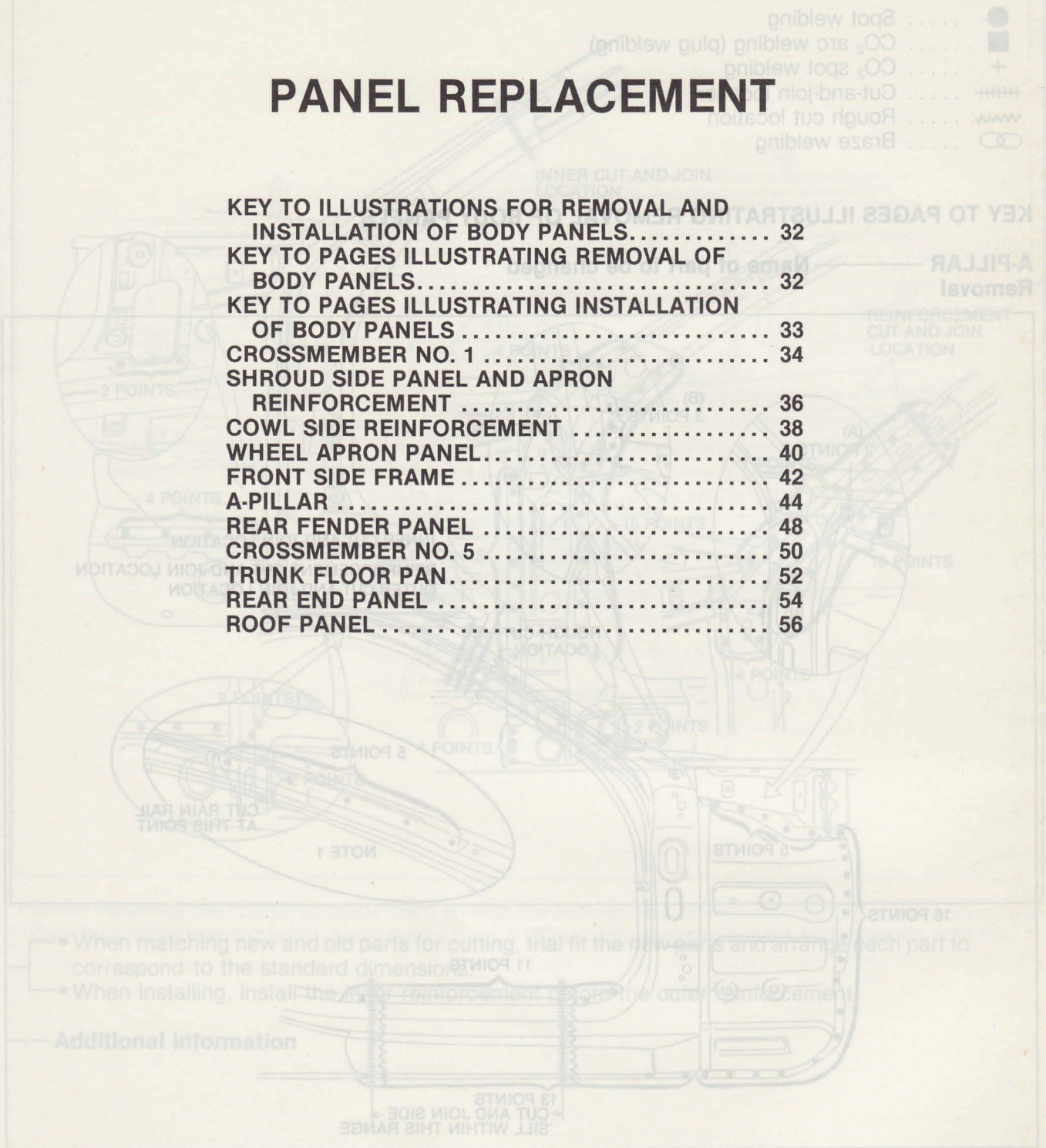
.....Both side rust-proof treated steel

.....One side rust-proof treated steel (reverse only)



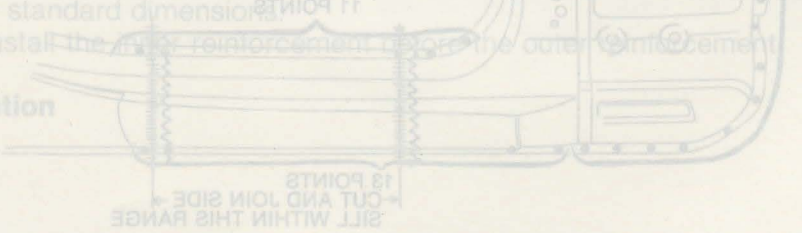
# PANEL REPLACEMENT

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• When matching new and old parts for cutting, be sure the fit the new parts and old parts correspond to the standard dimensions.  
 • When installing, install the new parts in the same location as the old parts.

### Additional information



• The sections marked with the same A and B are the same sections.  
 • NOTE 1, cut the rain rail at this point.  
 • Select the cut-and-join location according to the damage.

### Additional information

# PANEL REPLACEMENT

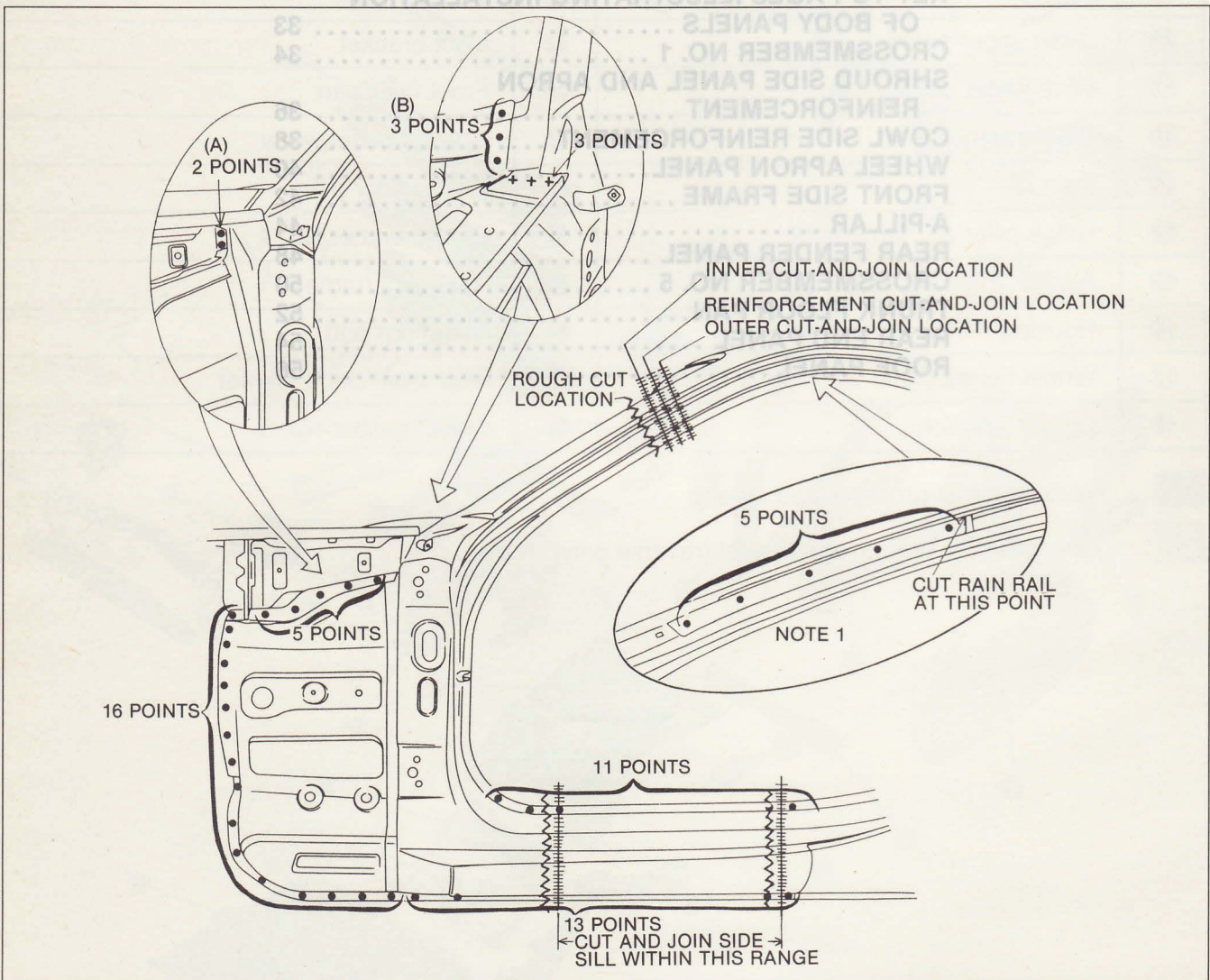
## PANEL REPLACEMENT

### KEY TO ILLUSTRATIONS FOR REMOVAL AND INSTALLATION OF BODY PANELS

- ..... Spot welding
- ..... CO<sub>2</sub> arc welding (plug welding)
- + ..... CO<sub>2</sub> spot welding
- ##### ..... Cut-and-join location
- ~~~~~ ..... Rough cut location
- ○ ..... Braze welding

### KEY TO PAGES ILLUSTRATING REMOVAL OF BODY PANELS

**A-PILLAR** ————— Name of part to be changed  
**Removal**



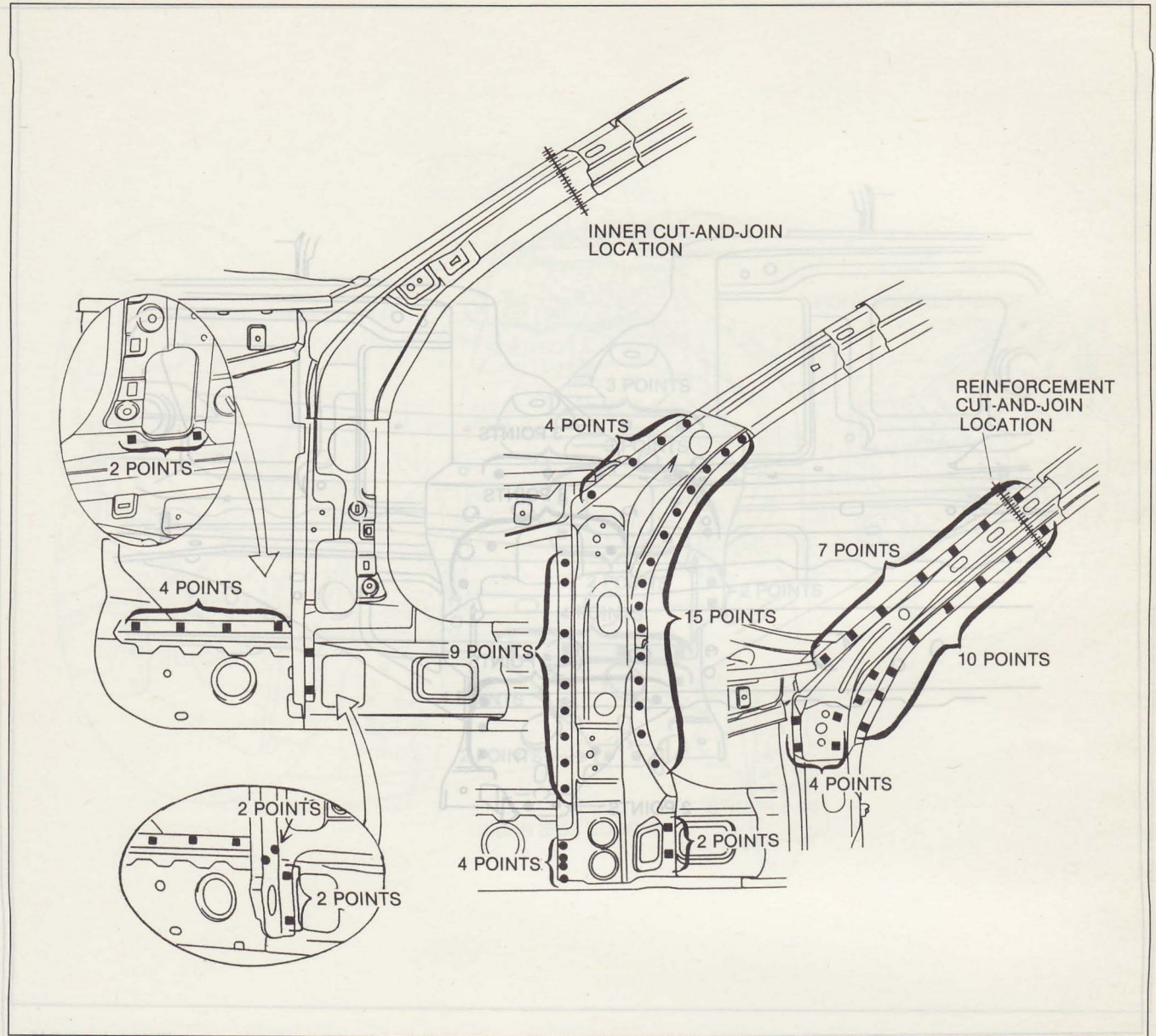
- The sections marked with the same A and B are the same sections.
- NOTE 1, cut the rain rail at this point.
- Select the cut-and-join location according to the damage.

**Additional information**

# PANEL REPLACEMENT

## KEY TO PAGES ILLUSTRATING INSTALLATION OF BODY PANELS Installation

CROSSMEMBER NO. 1  
Removal



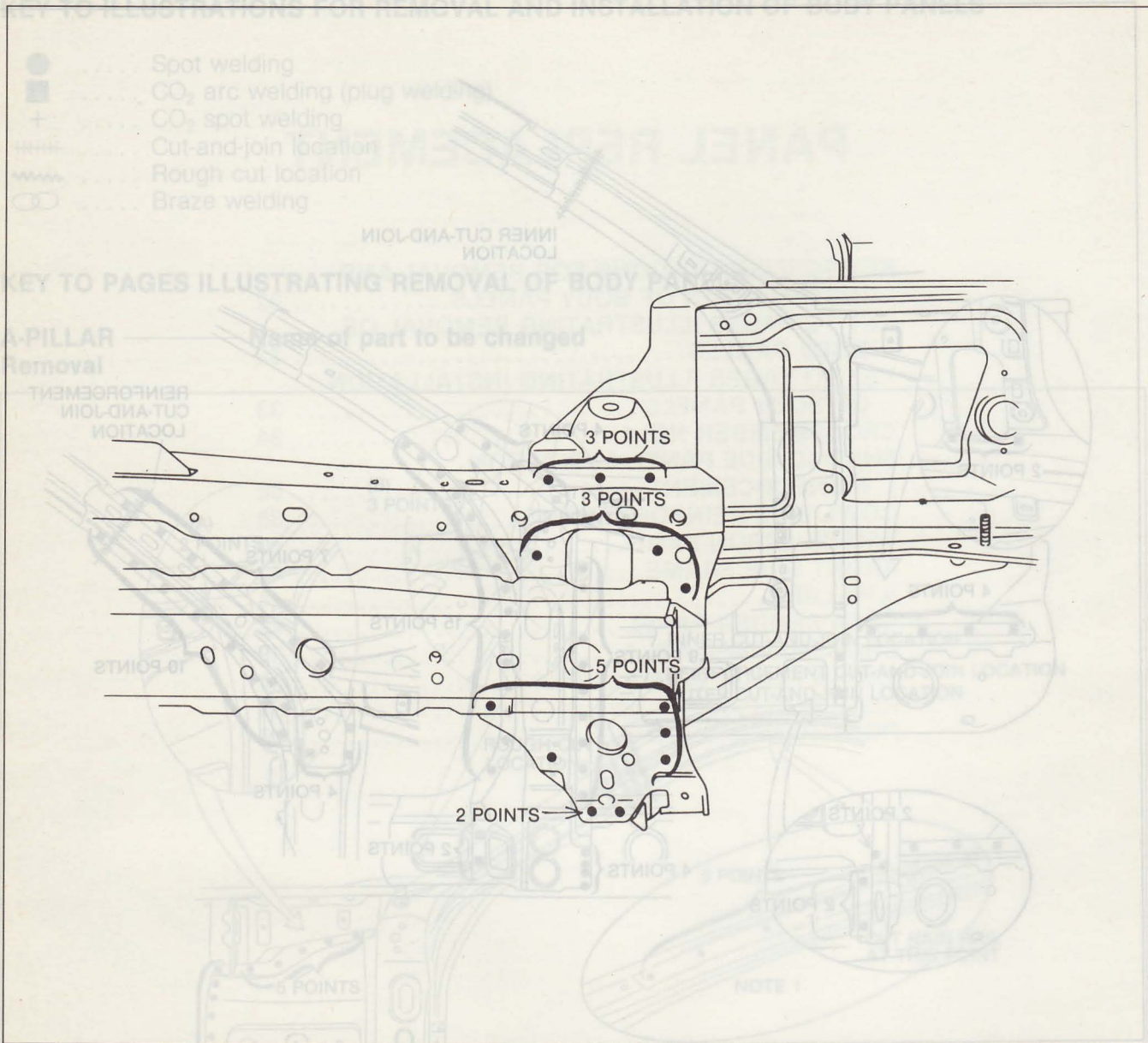
- When matching new and old parts for cutting, trial fit the new parts and arrange each part to correspond to the standard dimensions.
- When installing, install the inner reinforcement before the outer reinforcement.

### Additional information

# PANEL REPLACEMENT

## CROSSMEMBER NO. 1 Removal

KEY TO PAGES ILLUSTRATING INSTALLATION OF BODY PANELS  
Installation



• Left side shown; right side is symmetrical.

• When matching new and old parts for cutting, the standard dimensions shall correspond to the standard dimensions of the old parts.  
• When installing, install the inner reinforcement before the outer reinforcement.

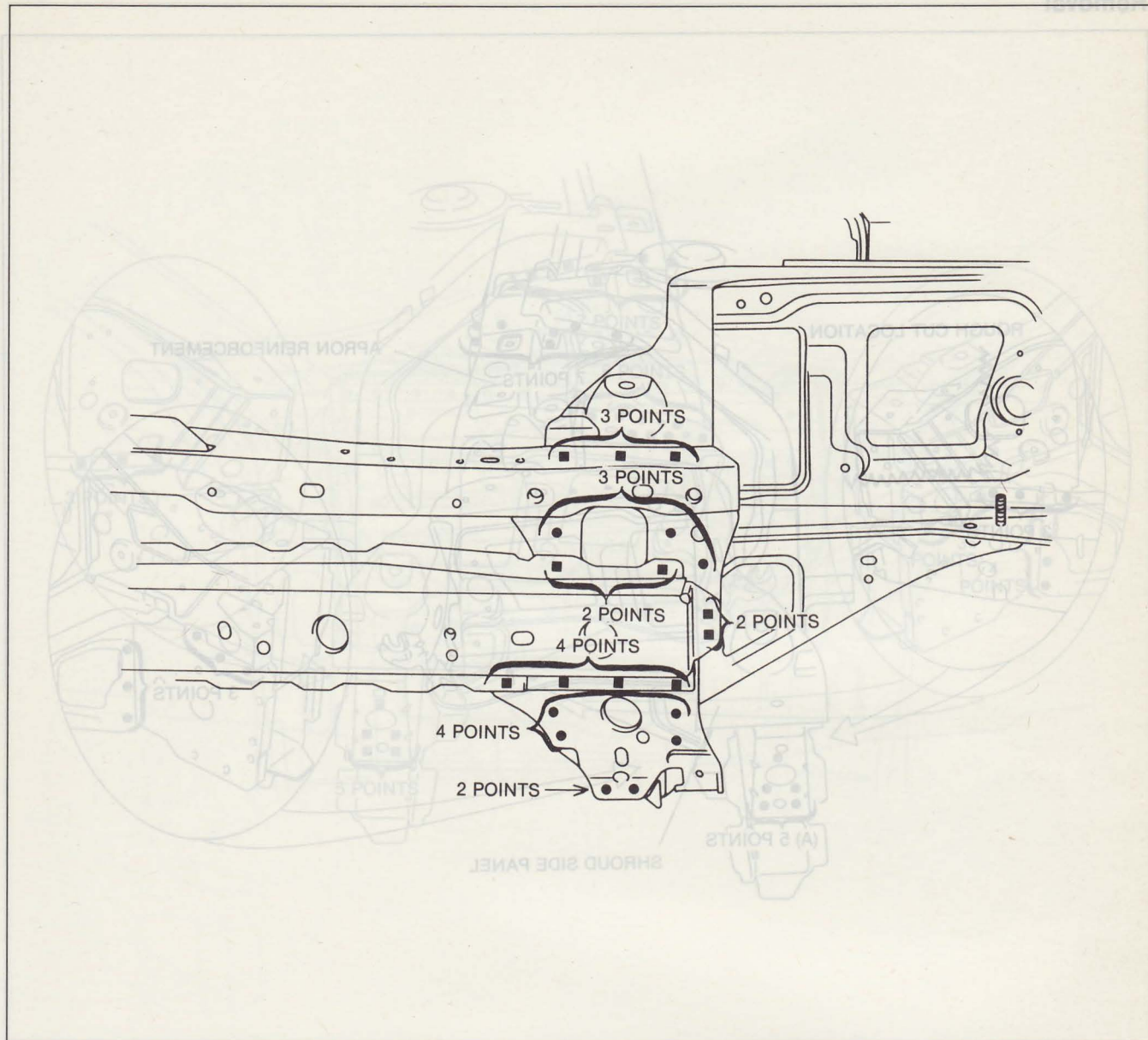
### Additional information

- The sections marked with the same A and B are the same sections.
- NOTE 1, cut the rain rail at this point.
- Select the cut-and-join location according to the damage.

### Additional information

# PANEL REPLACEMENT

## Installation

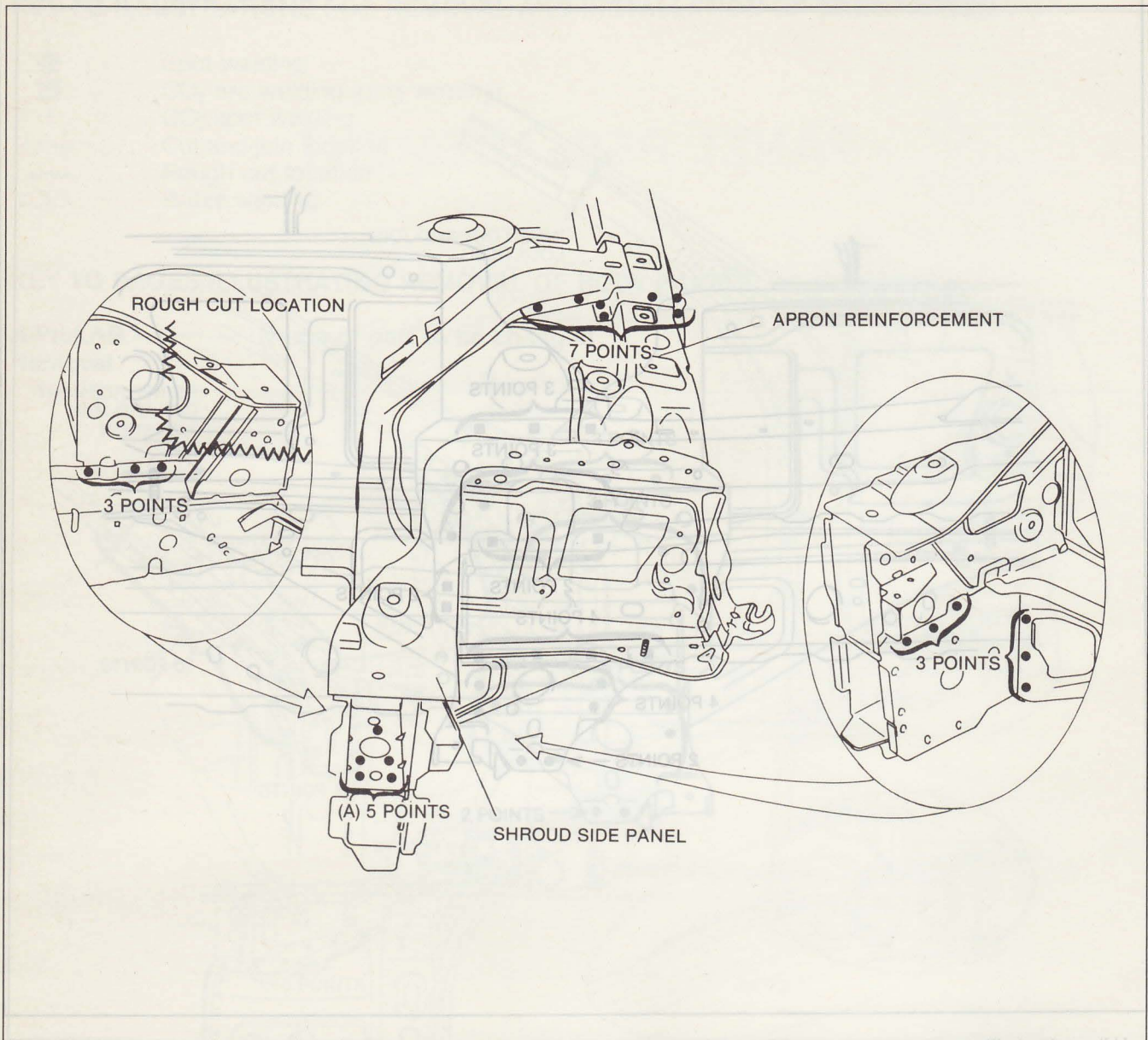


- When installing new parts, position them so that the section measurements match the body dimension drawings and standard body dimensions.

## PANEL REPLACEMENT

### SHROUD SIDE PANEL AND APRON REINFORCEMENT

#### Removal

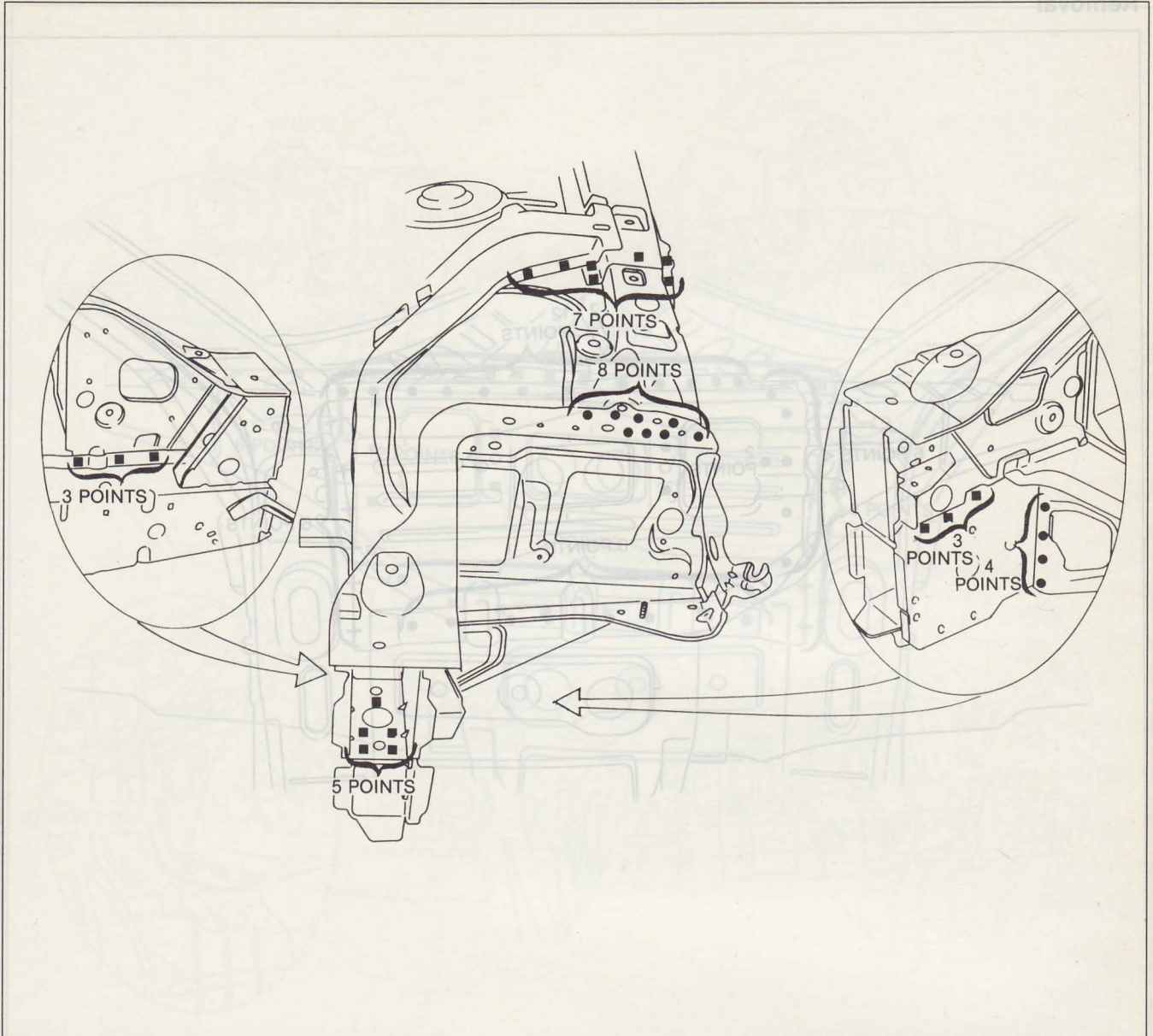


- Replace the apron reinforcement according to the damage.
- Drill points A after rough cutting the shroud side panel.

# PANEL REPLACEMENT

## Installation

COWL SIDE REINFORCEMENT  
Removal

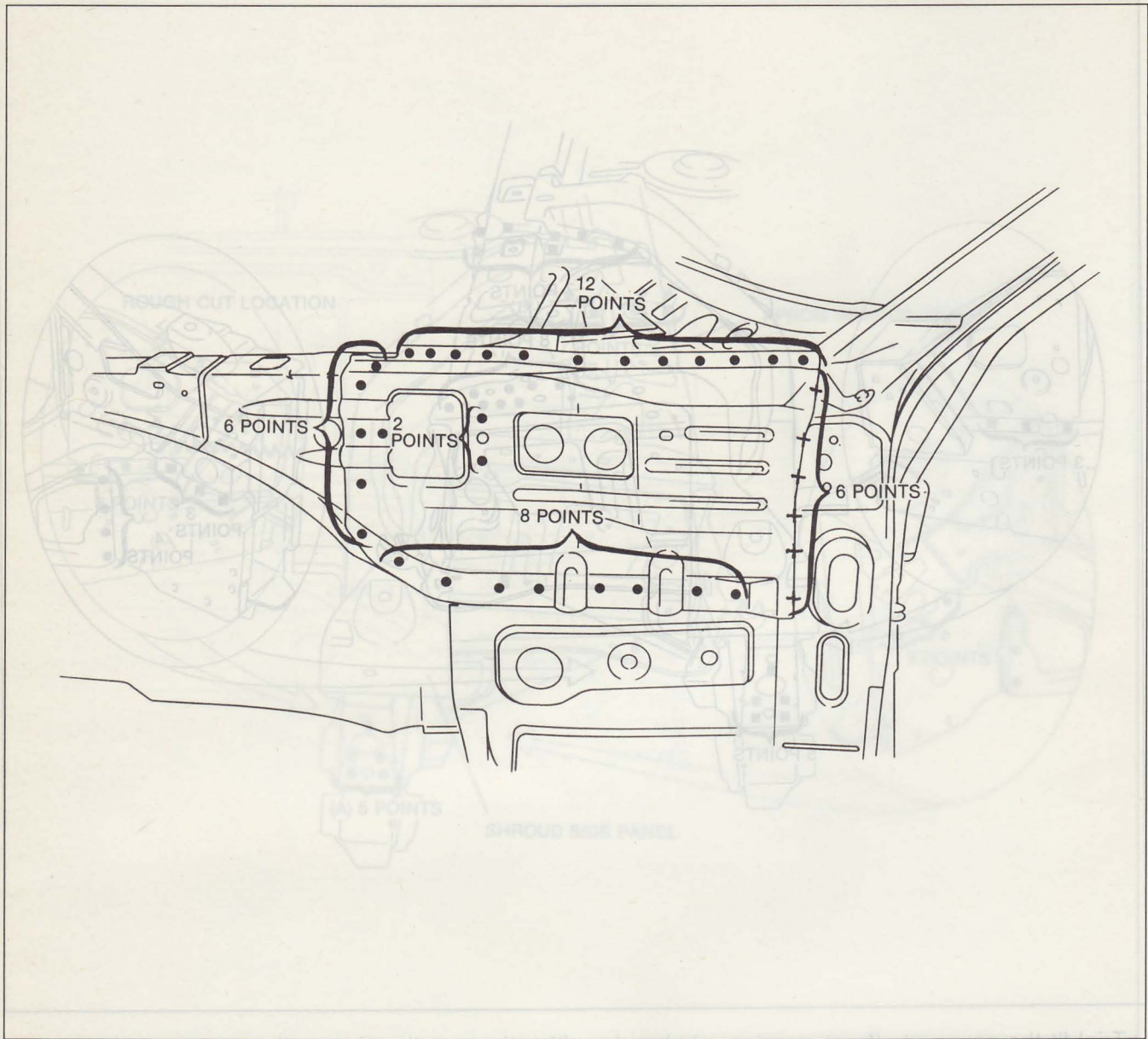


- Trial fit the new parts (front member, etc.) and position them so that the section measurements match the body dimension drawings and standard body dimensions.

# PANEL REPLACEMENT

## COWL SIDE REINFORCEMENT Removal

noillettatani



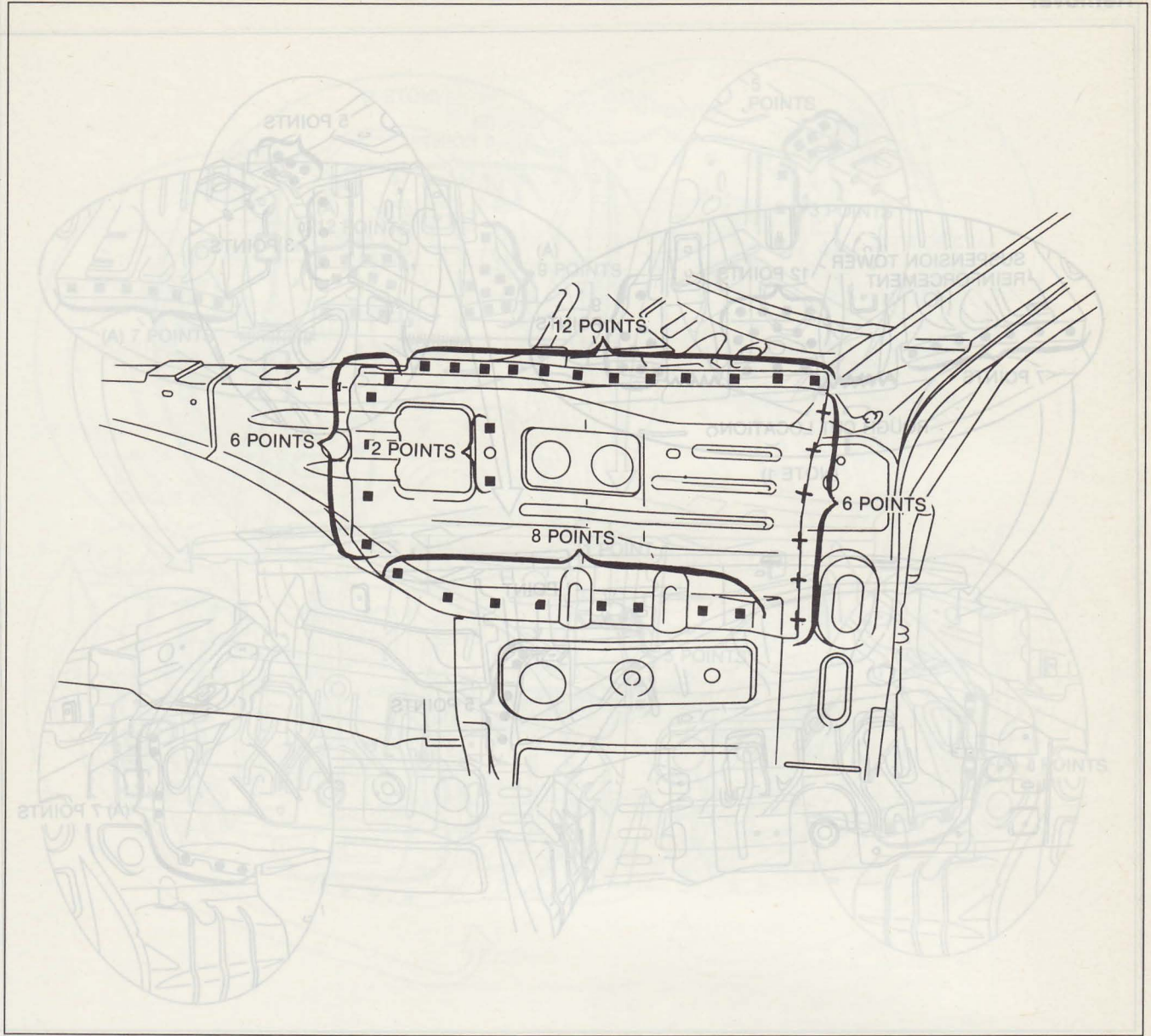
- Replace the apron reinforcement according to the dimensions and standard body dimensions of the body drawings.
- Drill points A after rough cutting the shroud side panel.



# PANEL REPLACEMENT

## Installation

WHEEL APRON PANEL



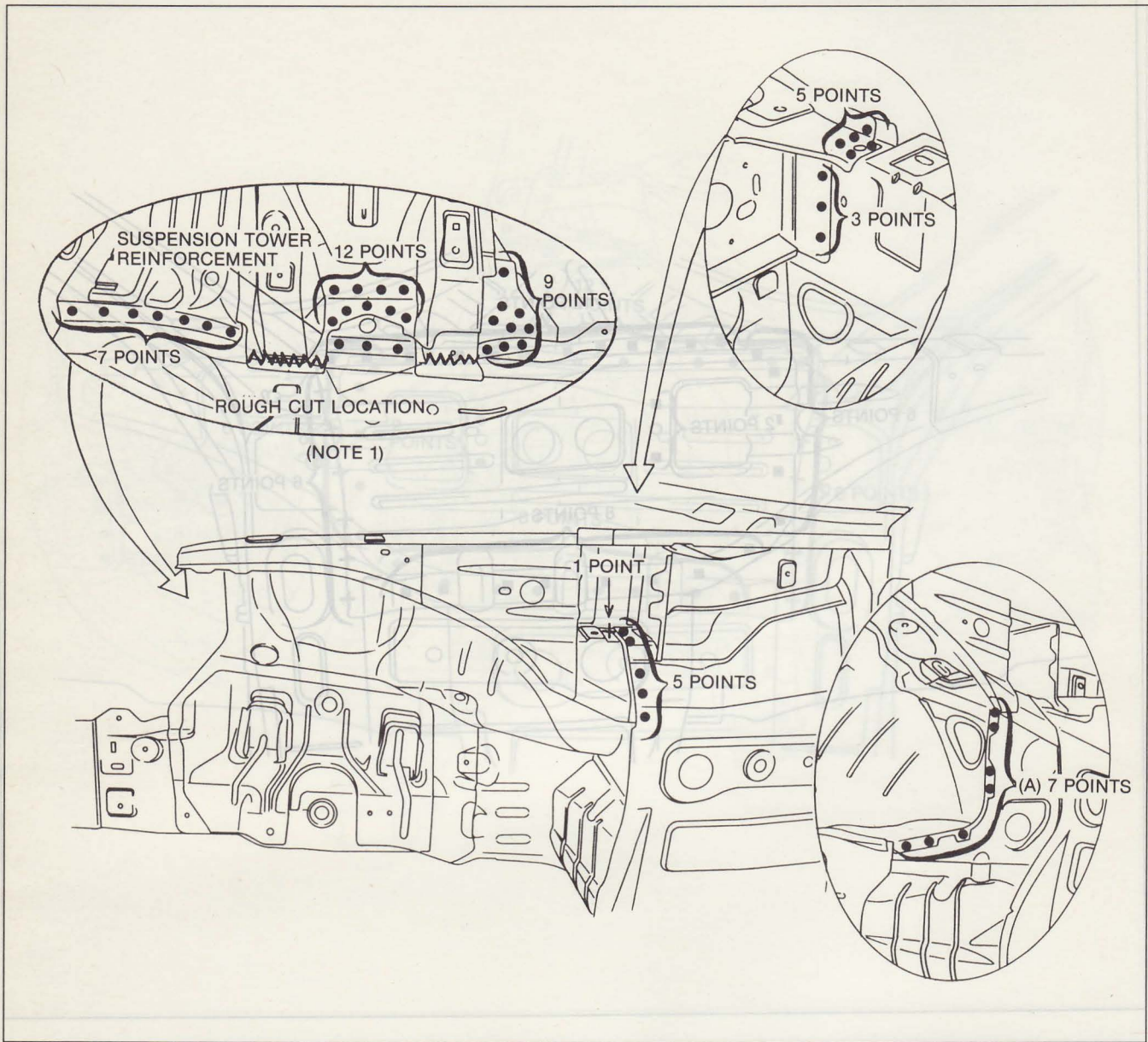
IV

- After cutting, remove the suspension tower reinforcement at the front of the suspension tower.
- Do not make open holes when drilling points A.
- After aligning the parts, check the fit of the parts before grinding.

# PANEL REPLACEMENT

## WHEEL APRON PANEL REPLACEMENT Removal

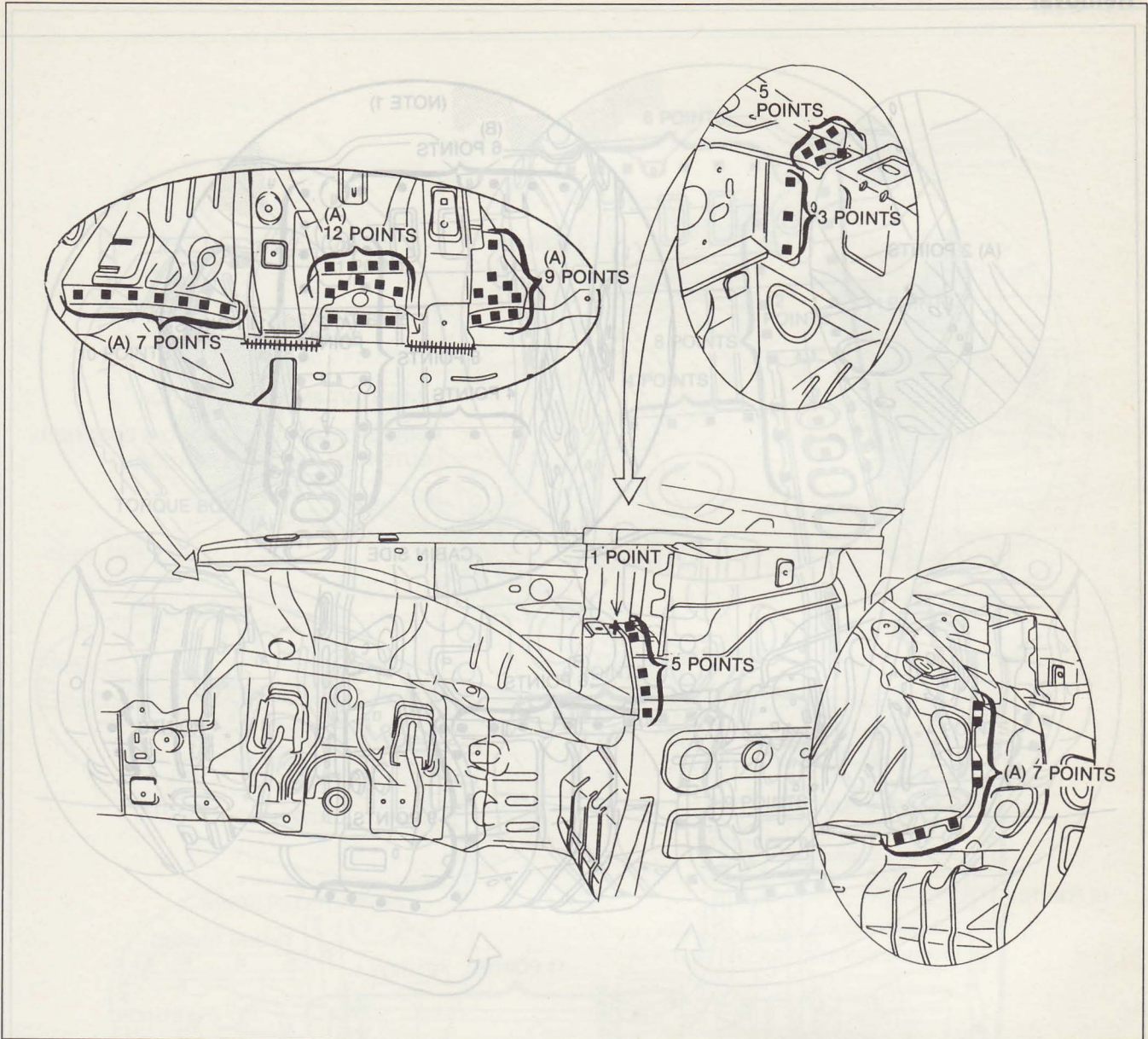
not for sale



- After rough cutting, remove the suspension tower reinforcement at the joint of the suspension tower reinforcement and the front side frame (NOTE 1). Do not damage the front side frame.
- Do not make open holes when drilling points A.

# PANEL REPLACEMENT

## Installation



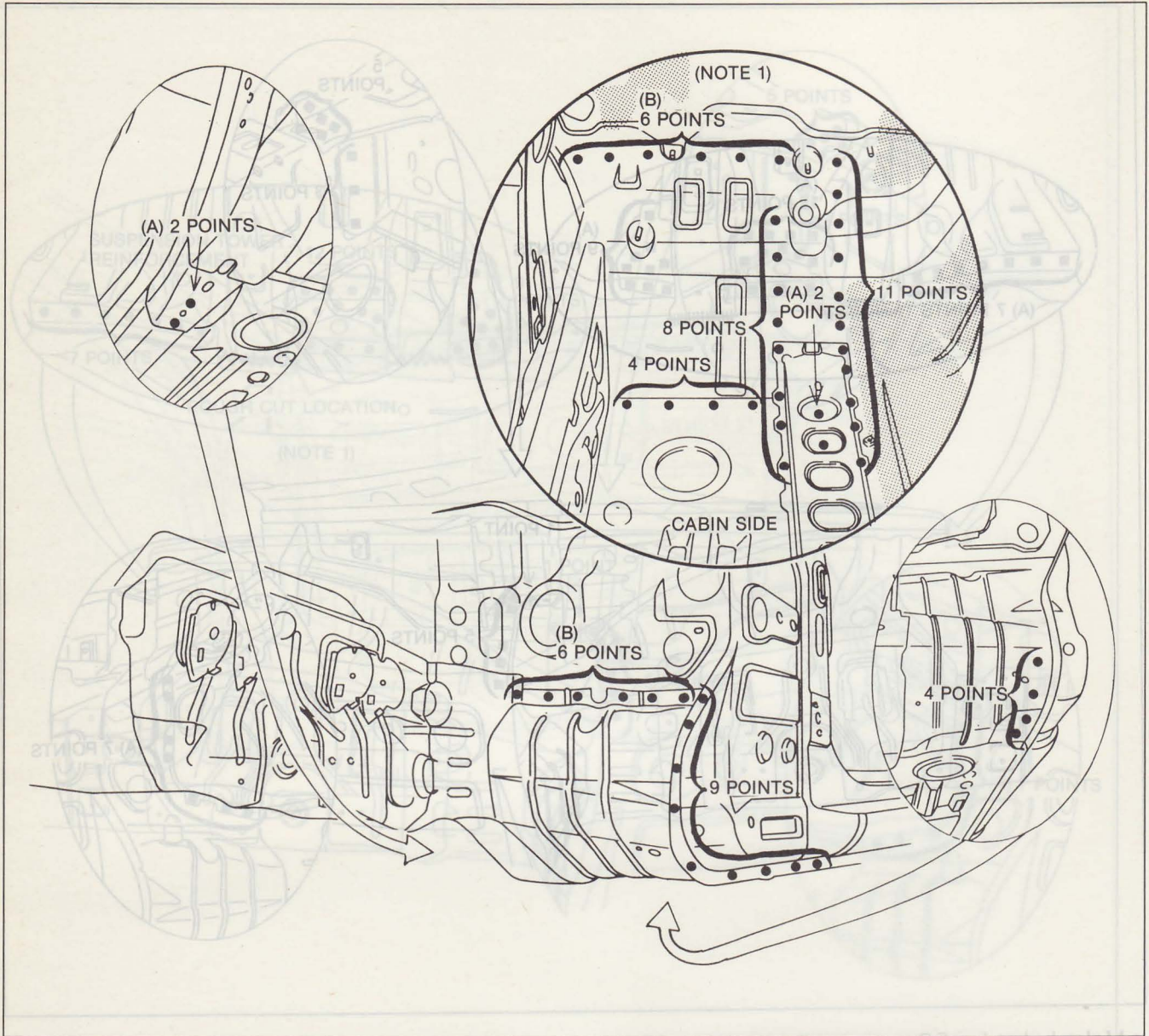
- Make holes for CO<sub>2</sub> arc welding before installing new parts at points A.
- Trial fit the new parts (crossmember No. 1, shroud side panel and apron reinforcement) and position them so that the section measurements match the body dimension drawings and standard body dimensions.
- After aligning to the standard dimensions, check the fit of related parts (hood, front fender).

B. Again trial fit the new parts and position them so that the section measurements match the standard dimensions.

# PANEL REPLACEMENT

## FRONT SIDE FRAME Removal

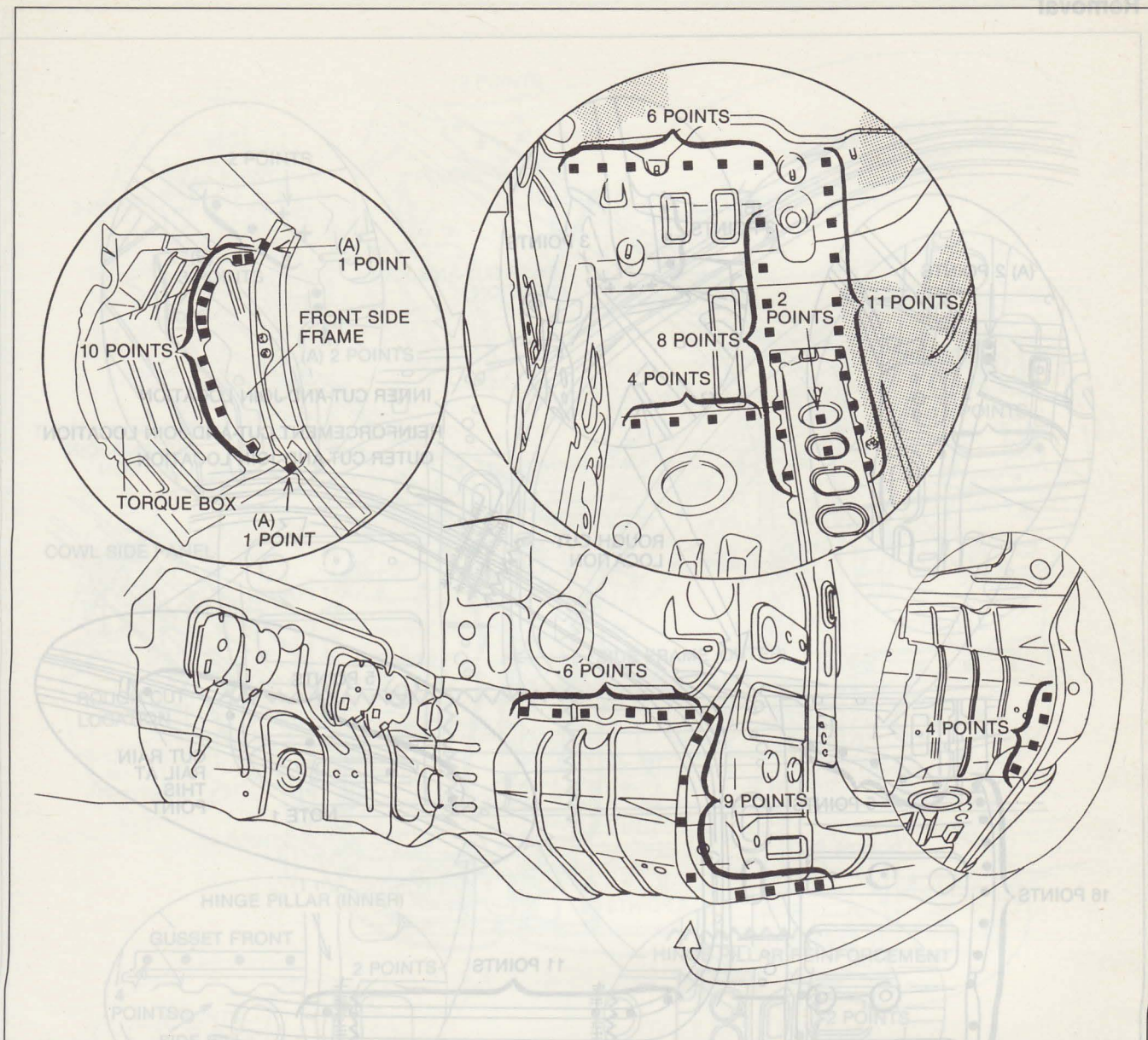
Installation



- The sections marked with the same A and B are the same sections.
- Drill the location except those marked B from the cabin side (NOTE 1).
- Do not make open holes when drilling points A.
- After aligning to the standard dimensions, check the fit of related parts (hood, front fender).
- Make holes for CO<sub>2</sub> air welding before installing new parts at points A.
- Tighten the new parts (crossmember) so that the section is not distorted.

# PANEL REPLACEMENT

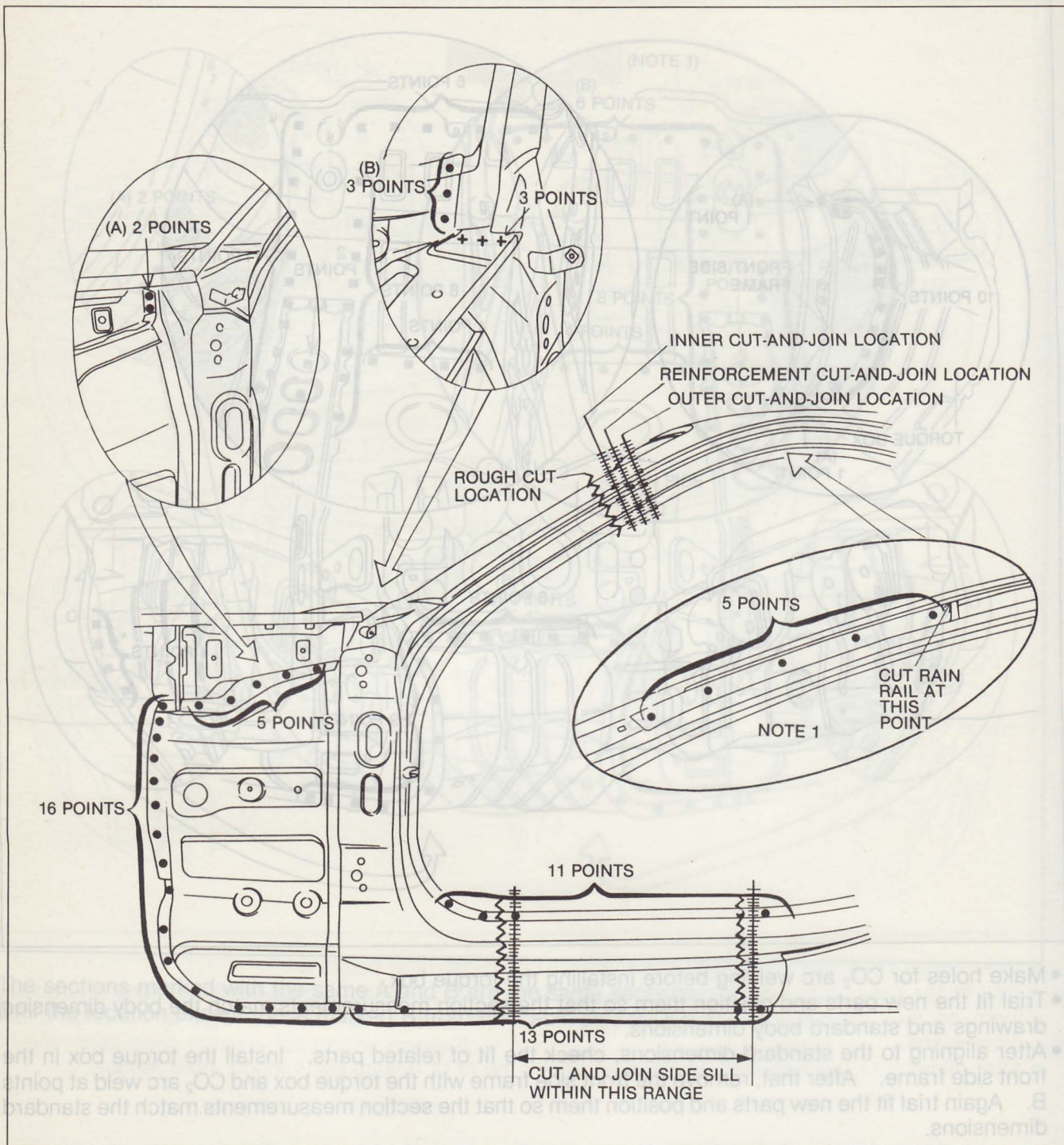
## Installation



- Make holes for CO<sub>2</sub> arc welding before installing the torque box.
- Trial fit the new parts and position them so that the section measurements match the body dimension drawings and standard body dimensions.
- After aligning to the standard dimensions, check the fit of related parts. Install the torque box in the front side frame. After that, remove the front side frame with the torque box and CO<sub>2</sub> arc weld at points B. Again trial fit the new parts and position them so that the section measurements match the standard dimensions.

# PANEL REPLACEMENT

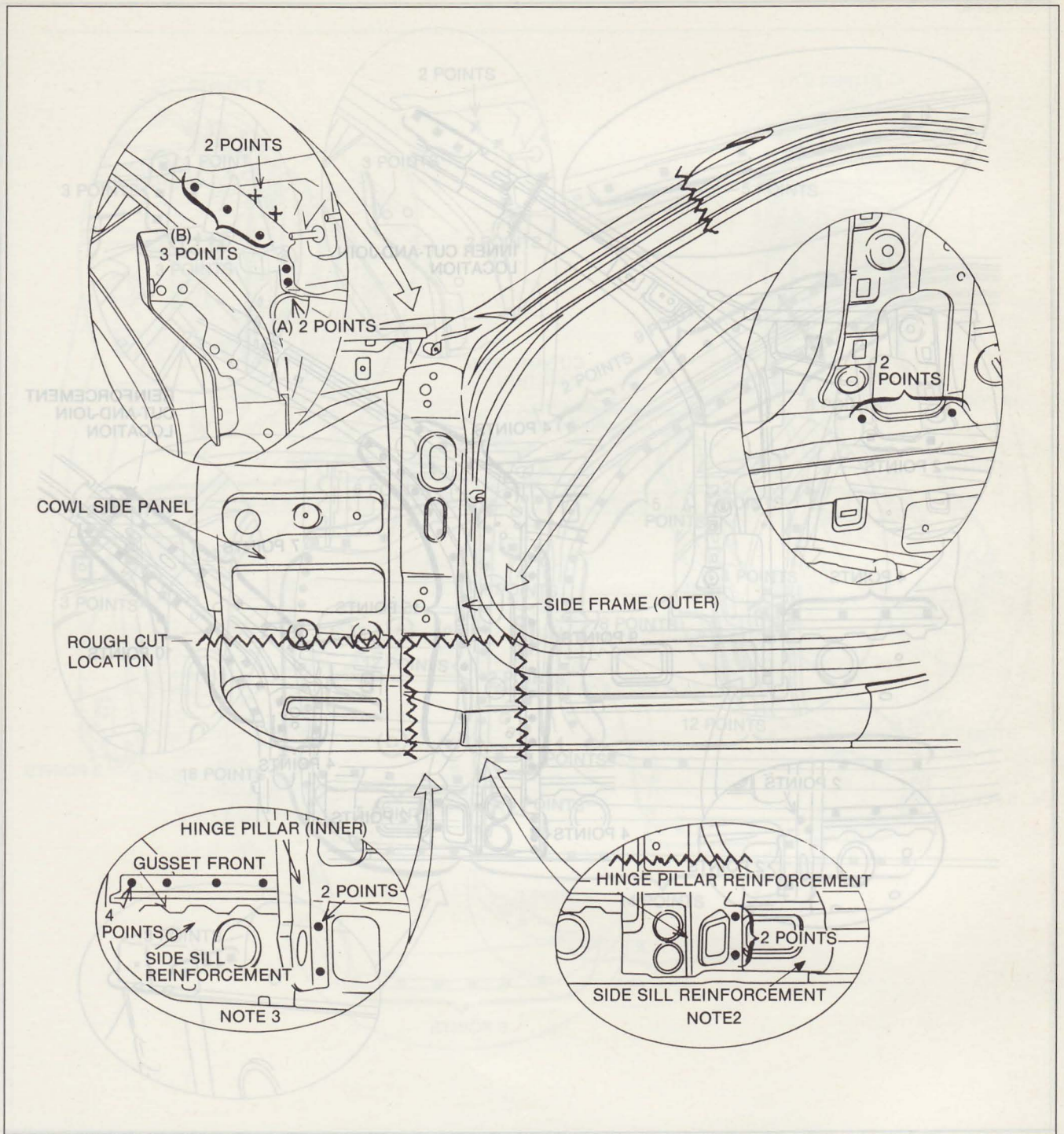
## A-PILLAR Removal



- The sections marked with the same A and B are the same section.
- Cut the rail at this point (NOTE 1).
- Select the cut-and-join location according to the damage when cutting the side sill.

# PANEL REPLACEMENT

## Removal

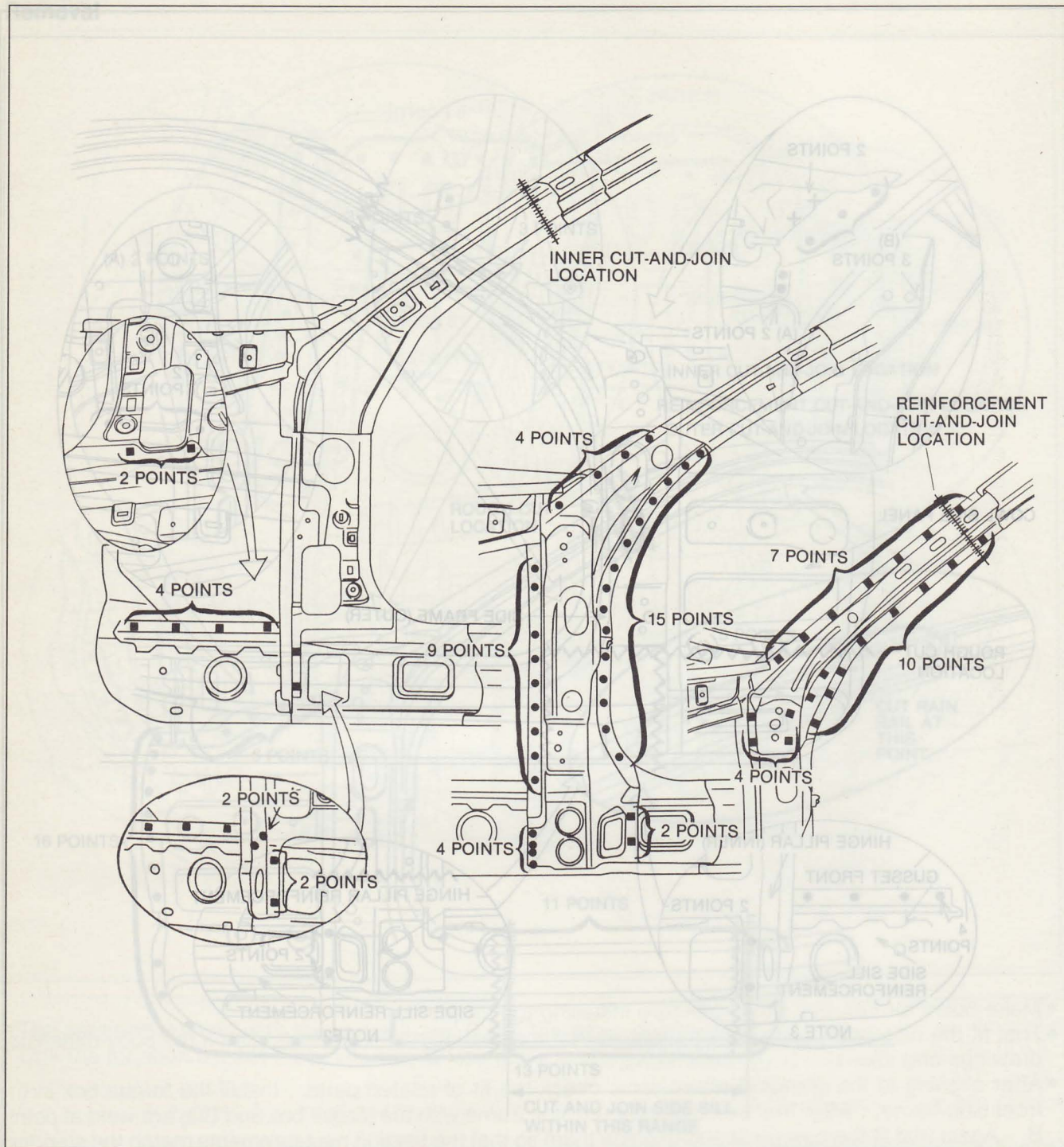


- Drill the two points after rough cutting the side frame (outer) (NOTE 2).
- Drill the six points after rough cutting the cowl side panel and the hinge pillar reinforcement (NOTE 3).

# PANEL REPLACEMENT

## Installation

Removal

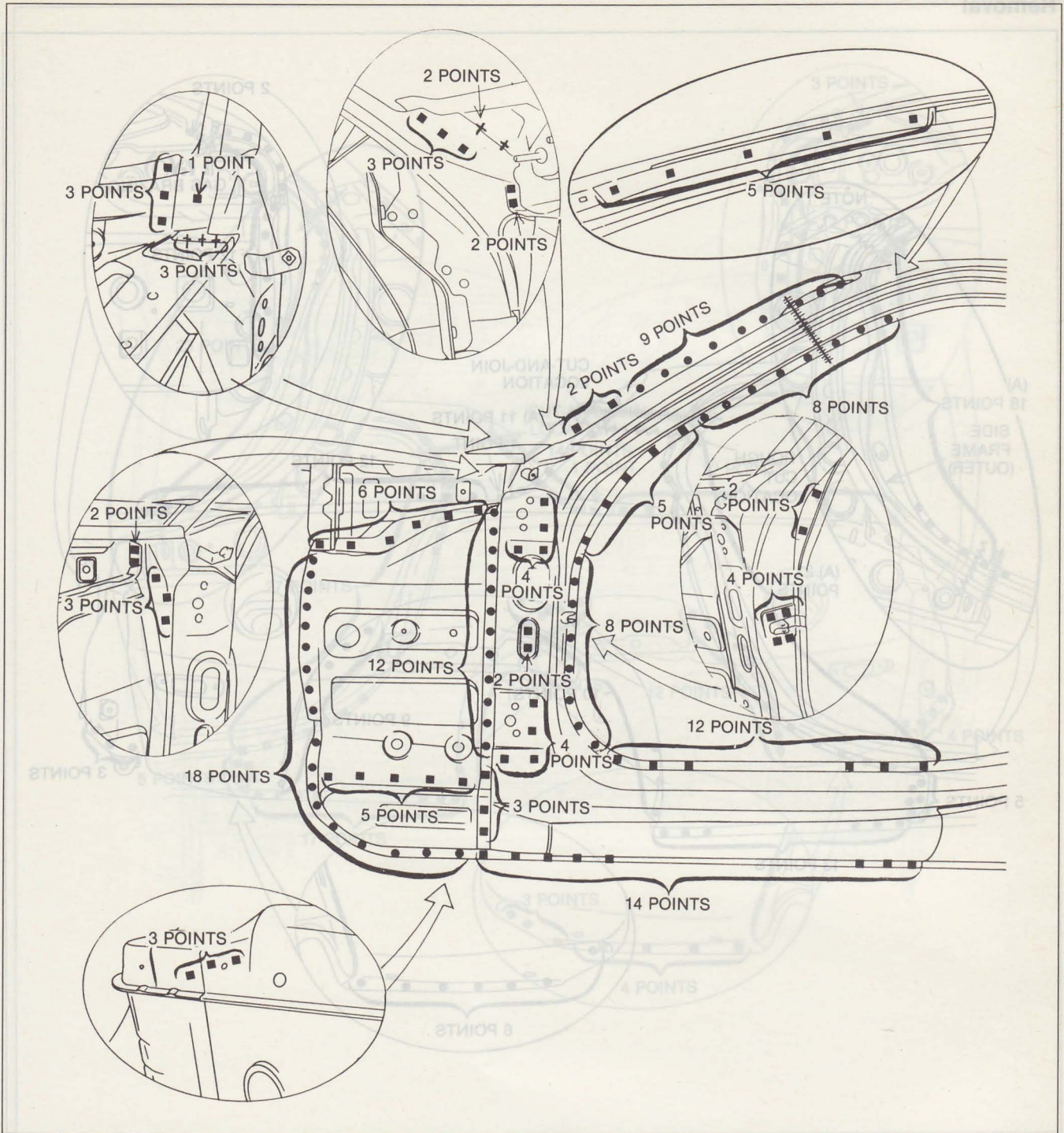


- When matching new and old parts for cutting, trial fit the new parts and position each part to correspond to the standard dimensions.
- Install the inner reinforcement before the outer reinforcement.
- Select the cut-and-join location according to the damage when cutting the side sill.



# PANEL REPLACEMENT

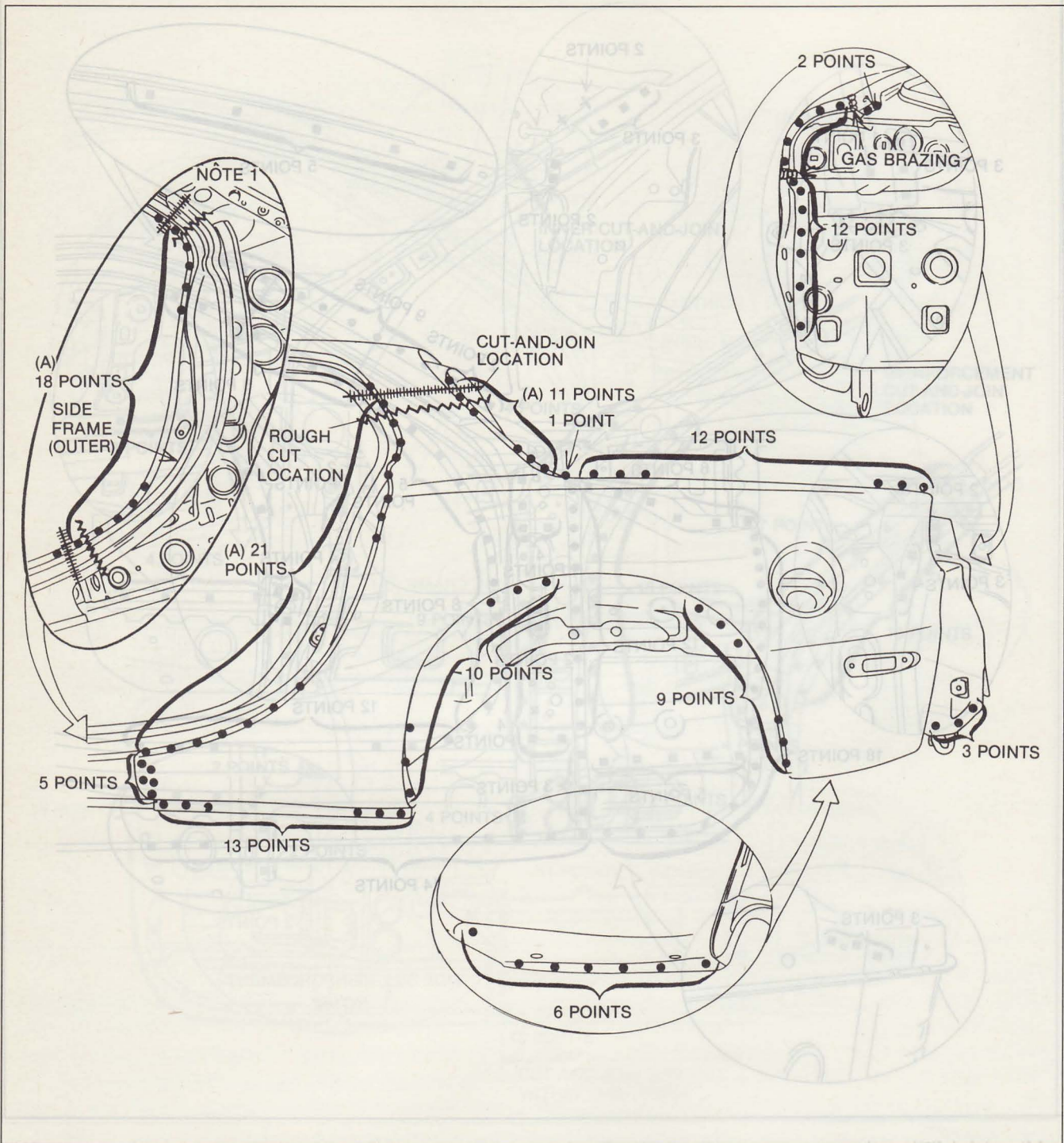
## Installation



- After trial fitting the new parts, check the fit of the related parts (front fender, door).

# PANEL REPLACEMENT

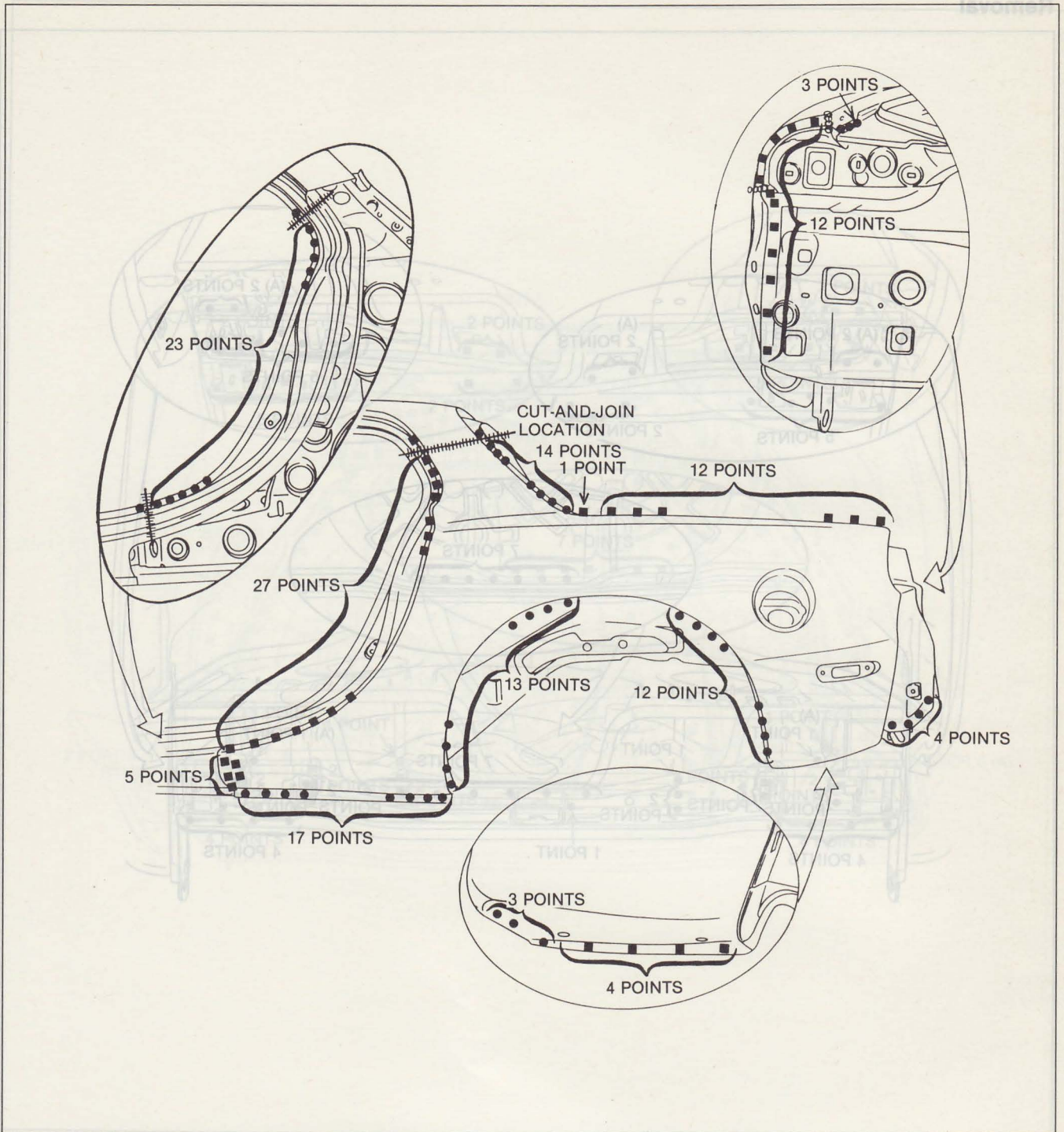
## REAR FENDER PANEL Removal



- Replace the side frame (outer) according to the damage (NOTE 1).
- Spot-weld points A change in relation to the cut-and-join location.
- Remove brazing welds by using a disc grinder.

# PANEL REPLACEMENT

## Installation

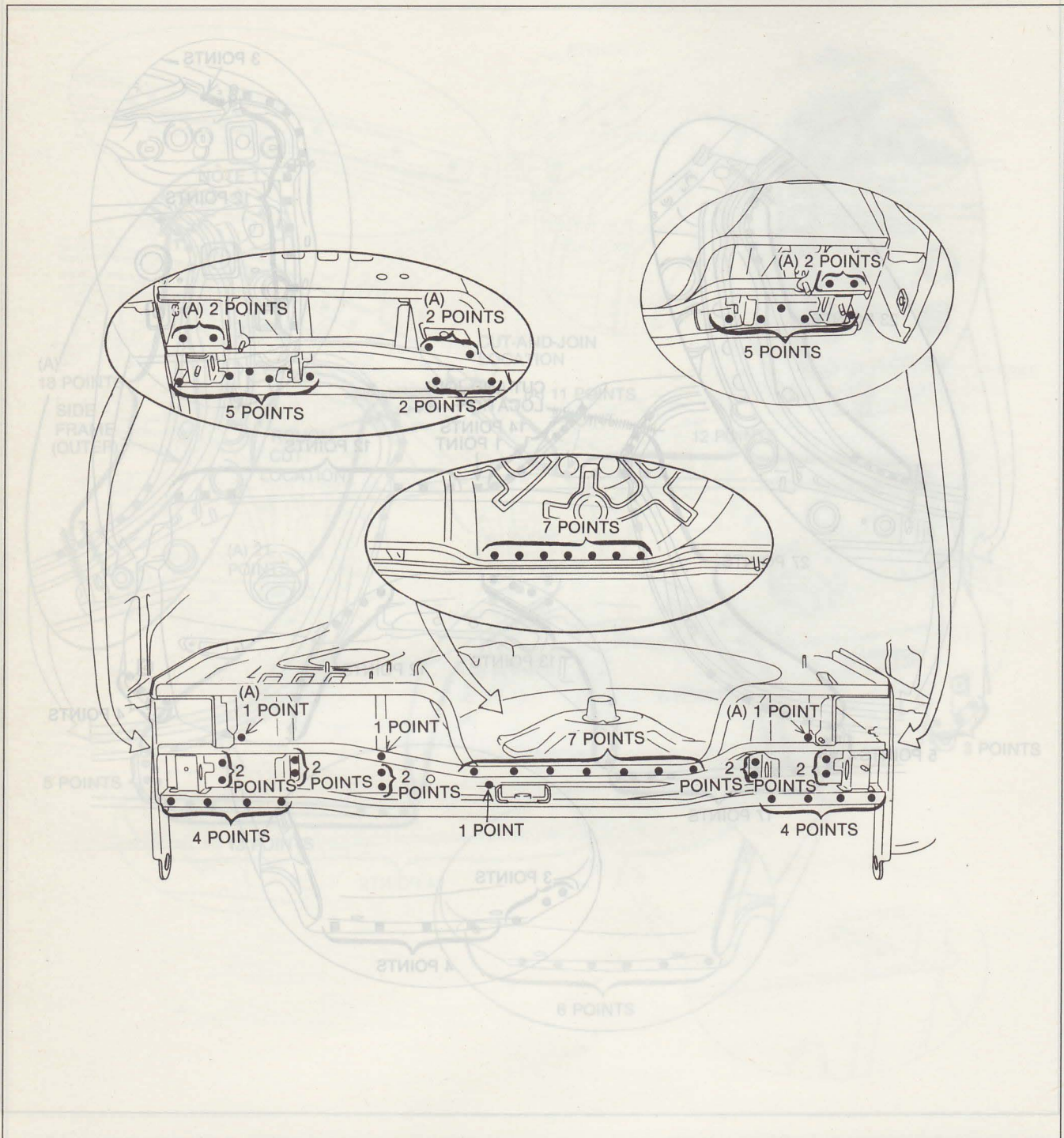


- When matching new and old parts for cutting, trial fit the new parts and position each part to correspond to the standard dimensions.
- Apply body sealer to the wheel arch line.
- After trial fitting the new parts, check the fit of the related parts (door, rear bumper, combination light).

# PANEL REPLACEMENT

## CROSSMEMBER NO. 5 Removal

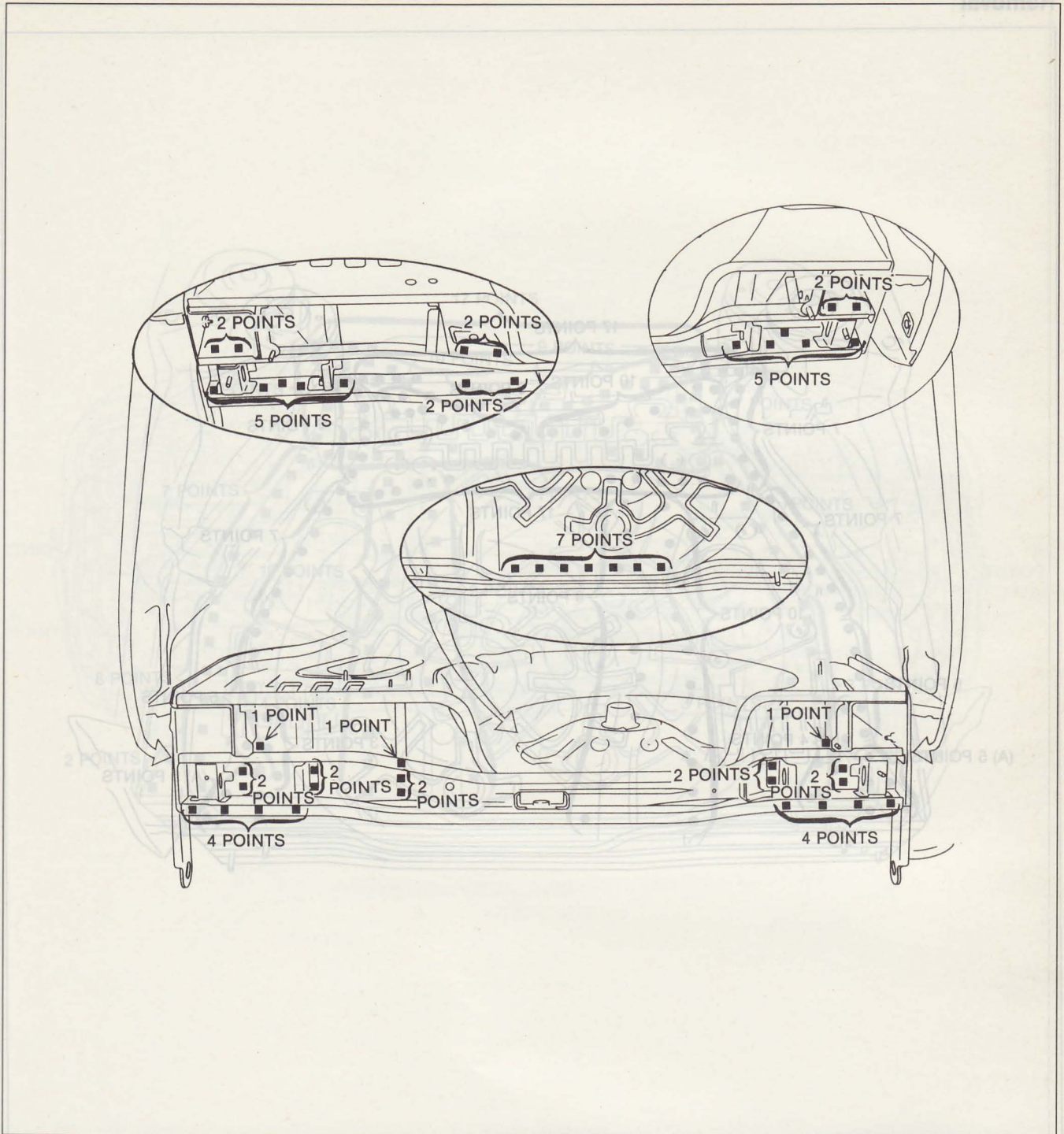
Installation



- Rough cut around the spot-welding points marked A to remove the crossmember. Do not damage the frame.
- Grind the projections remaining on the frame side by using a sander.

# PANEL REPLACEMENT

## Installation

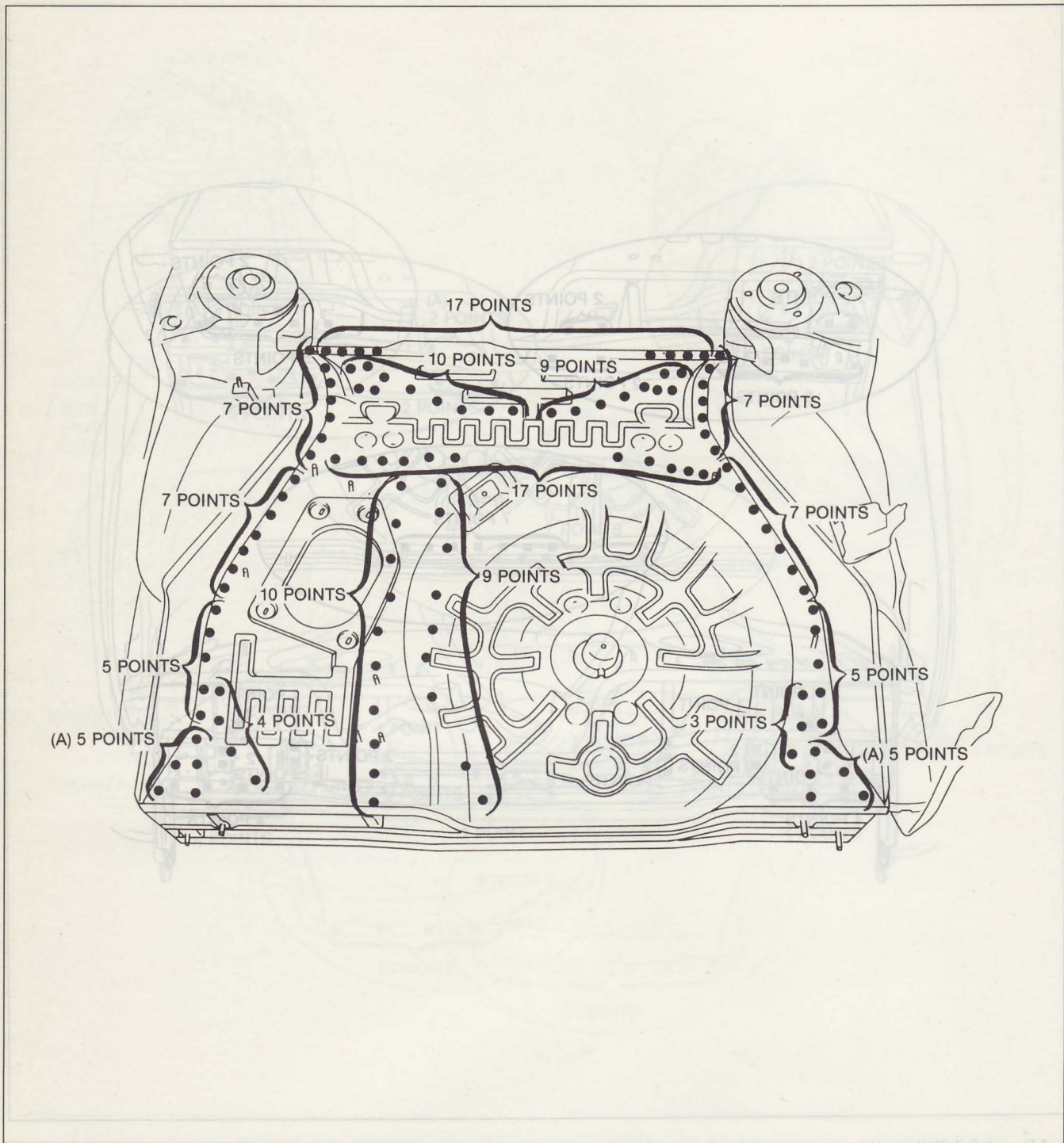


- After trial fitting the new parts, check the fit of the related parts (rear end panel, rear bumper).
- It is difficult to drill the spot-welding points marked A because of the light bracket and corner plates.
- Rough cut around these points to remove the remaining parts, tried with the drill bit.
- Grind the projections remaining on the frame side by using a sander or disc grinder.

## PANEL REPLACEMENT

### TRUNK FLOOR PAN 5 Removal

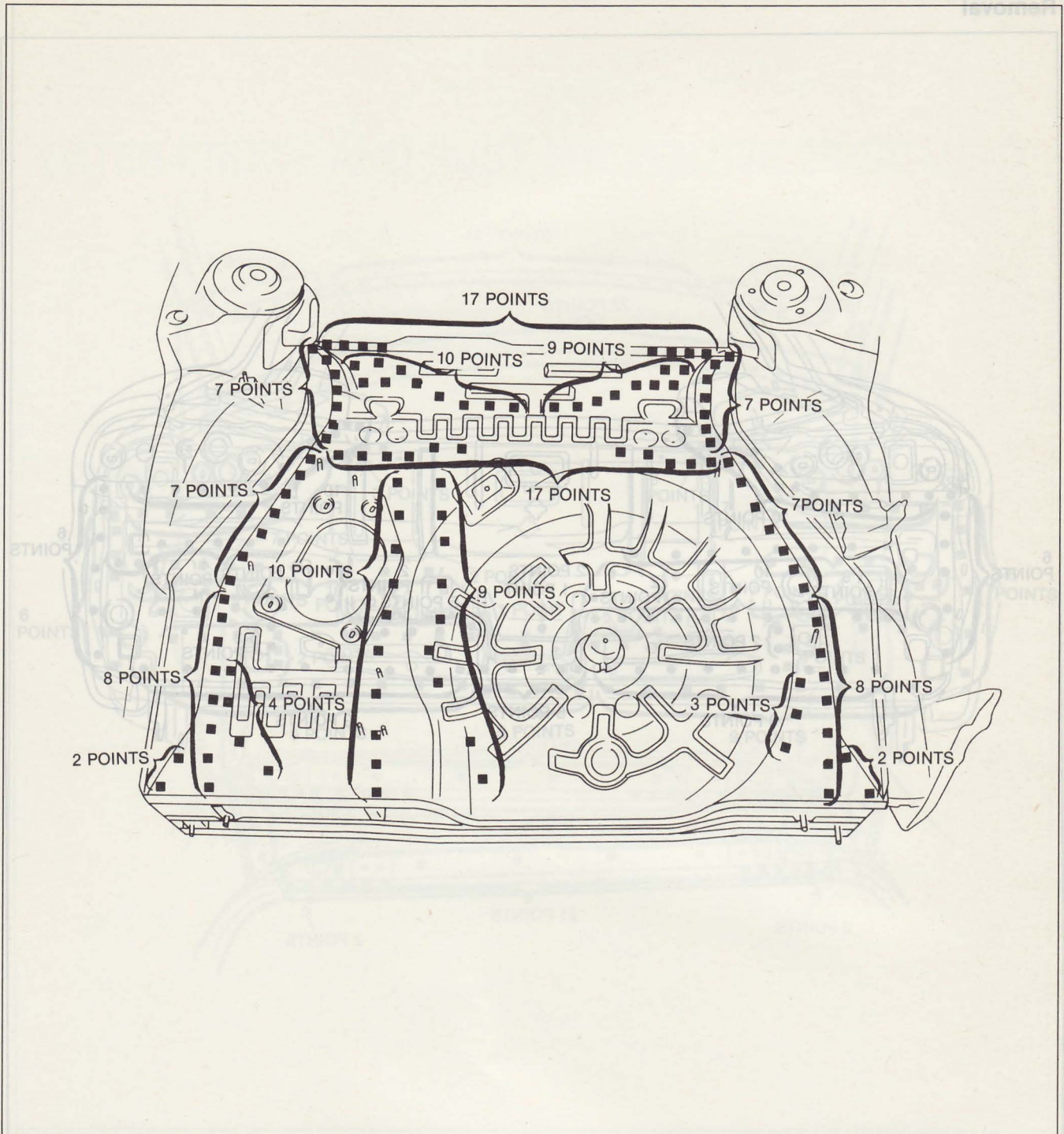
Installation



- It is difficult to drill the spot-welding points marked A because of the light bracket and corner plate. Rough cut around these points to remove the trunk floor pan.
- Grind the projections remaining on the frame side by using a sander or disc grinder.

# PANEL REPLACEMENT

## Installation

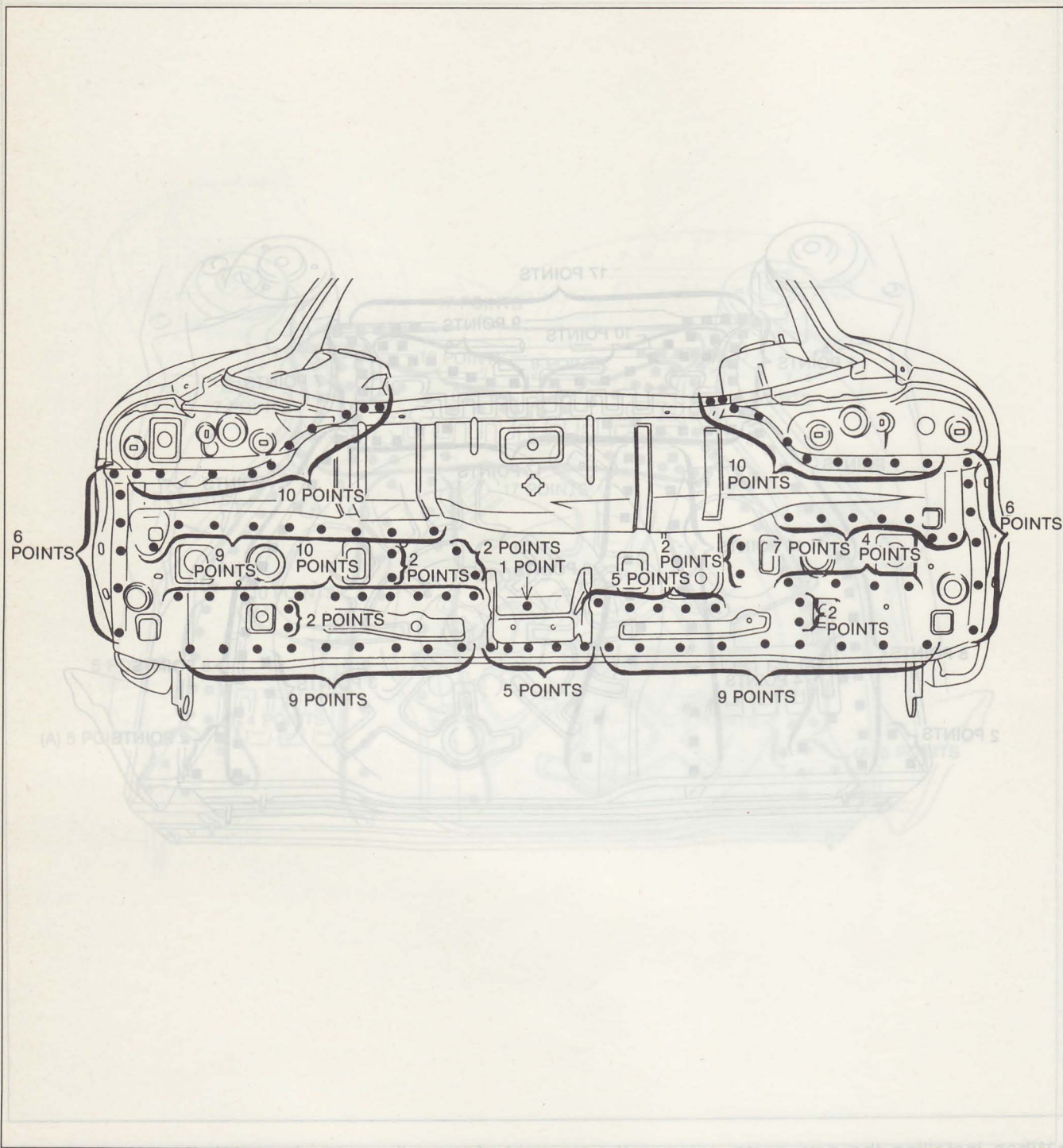


- When installing the new parts, arrange the rear side frame dimension to match the standard body dimensions.
- After trial fitting the new parts, check the fit of the related parts.
- After trial fitting the new parts, check the fit of the related parts (rear hatch, rear combination light, rear bumper).

# PANEL REPLACEMENT

Installation

## REAR END PANEL Removal

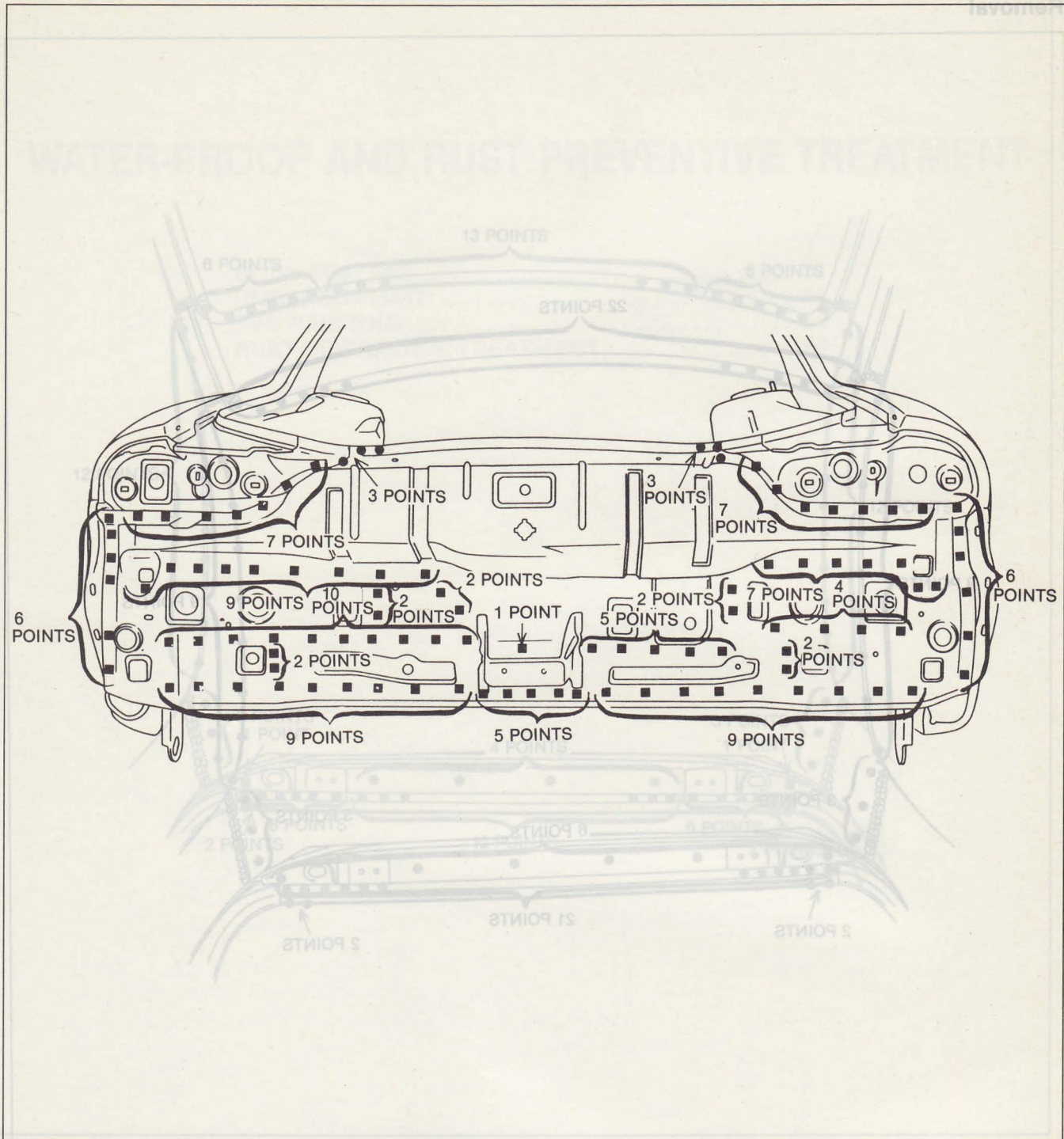


- Drill around the license plate bracket after rough cutting it.
- After trial fitting the new part, check the fit of the related parts to find each one's location.
- Grind the projections remaining on the frame side by using a sander or disc grinder.



# PANEL REPLACEMENT

## Installation

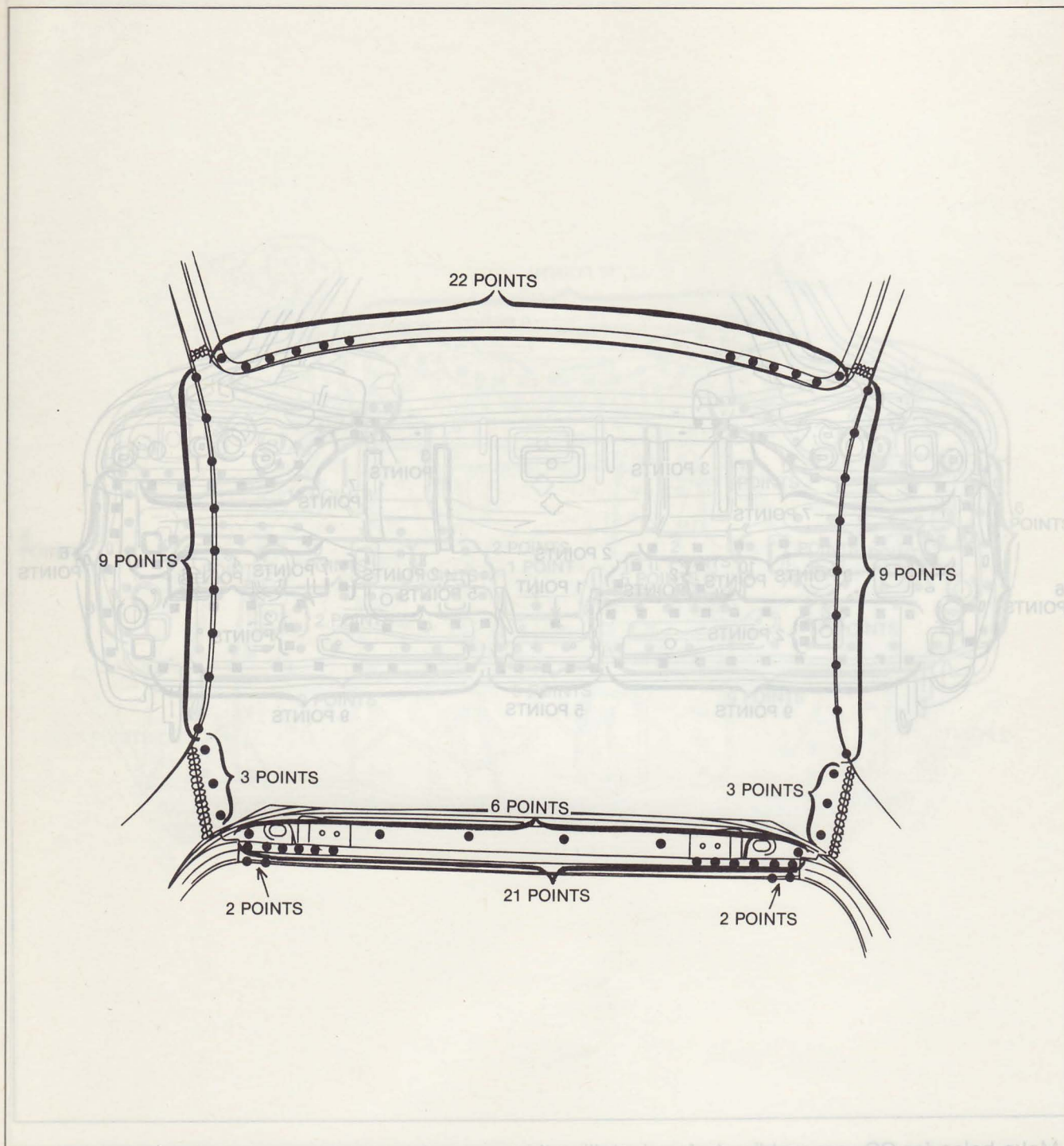


- Make holes for CO<sub>2</sub> arc welding before installing the new parts.
- Trial fit the new parts and position them so that the section measurements match the body dimension drawings and standard body dimensions.
- After trial fitting the new parts, check the fit of the related parts (rear hatch, rear combination light, rear bumper).

# PANEL REPLACEMENT

## ROOF PANEL Removal

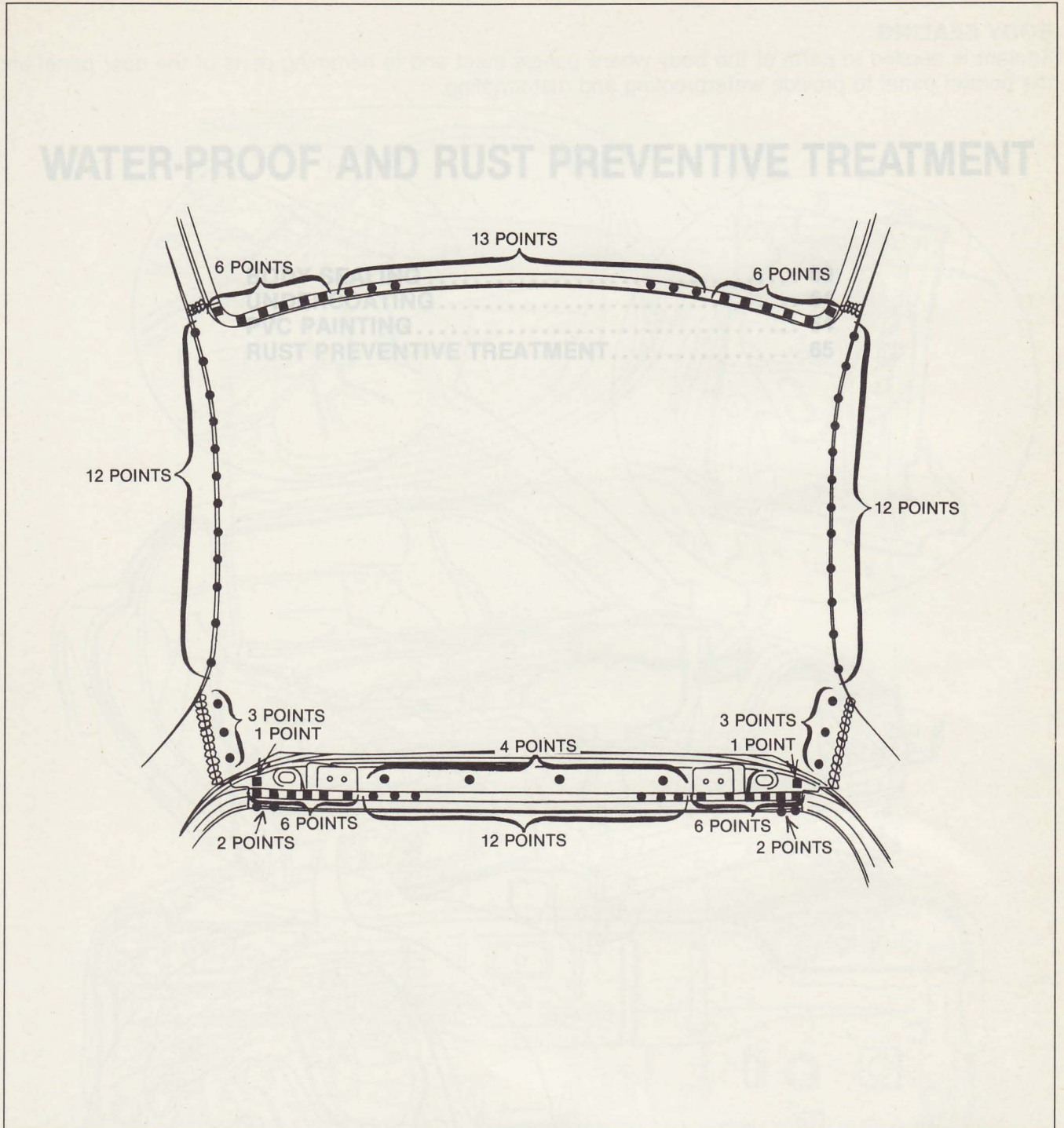
Installation



- Remove the brazing welds of the A and B-pillars by using a disc grinder.

# PANEL REPLACEMENT

## Installation



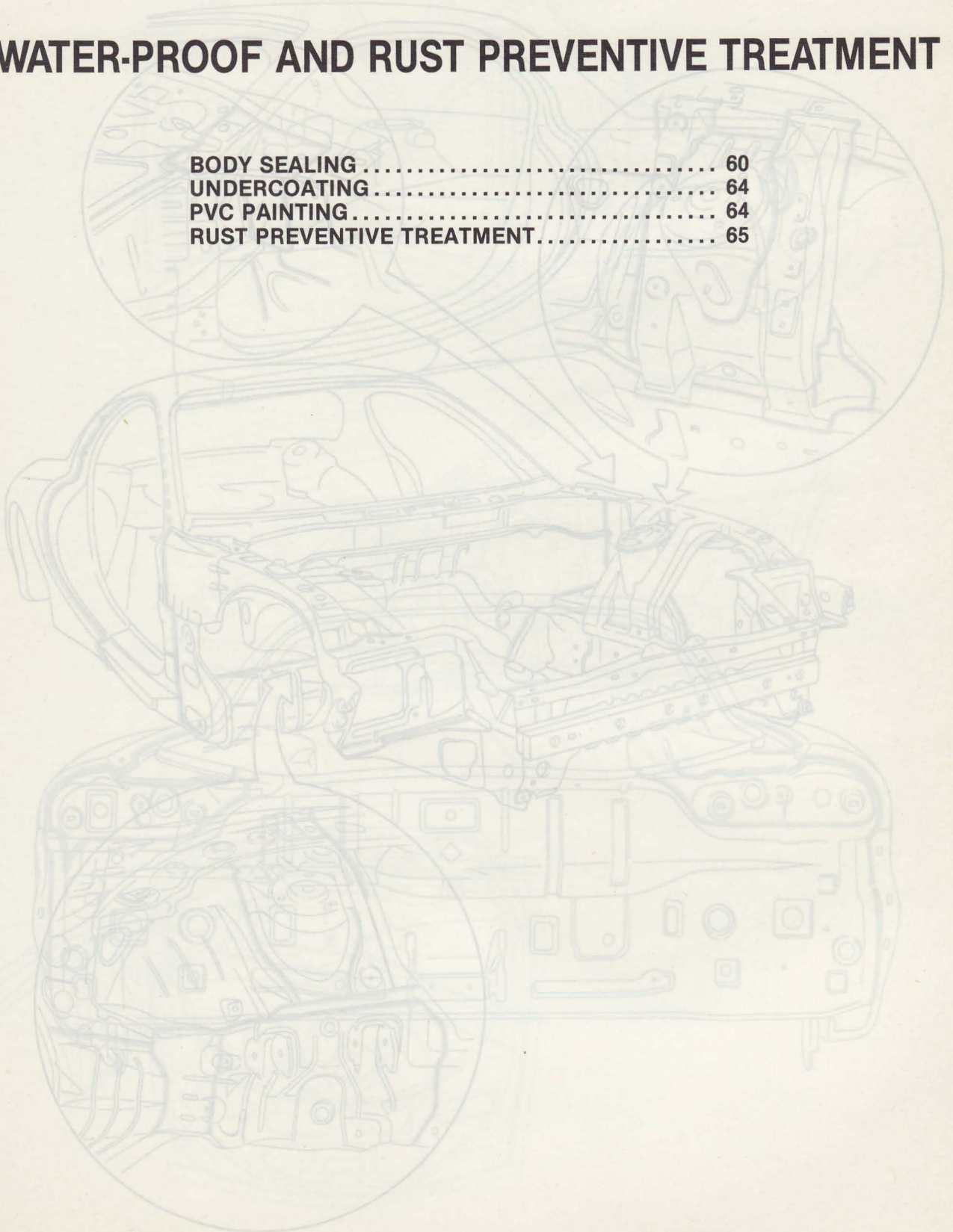
- Before installing the roof panel, apply body sealer between the roof panel and the roof reinforcement.

**BODY SEALING**

Sealant is applied to parts of the body where panels meet and to hemming parts of the door panel and the bonnet panel to provide waterproofing and rust-proofing.

# WATER-PROOF AND RUST PREVENTIVE TREATMENT

<b>BODY SEALING .....</b>	<b>60</b>
<b>UNDERCOATING .....</b>	<b>64</b>
<b>PVC PAINTING .....</b>	<b>64</b>
<b>RUST PREVENTIVE TREATMENT .....</b>	<b>65</b>

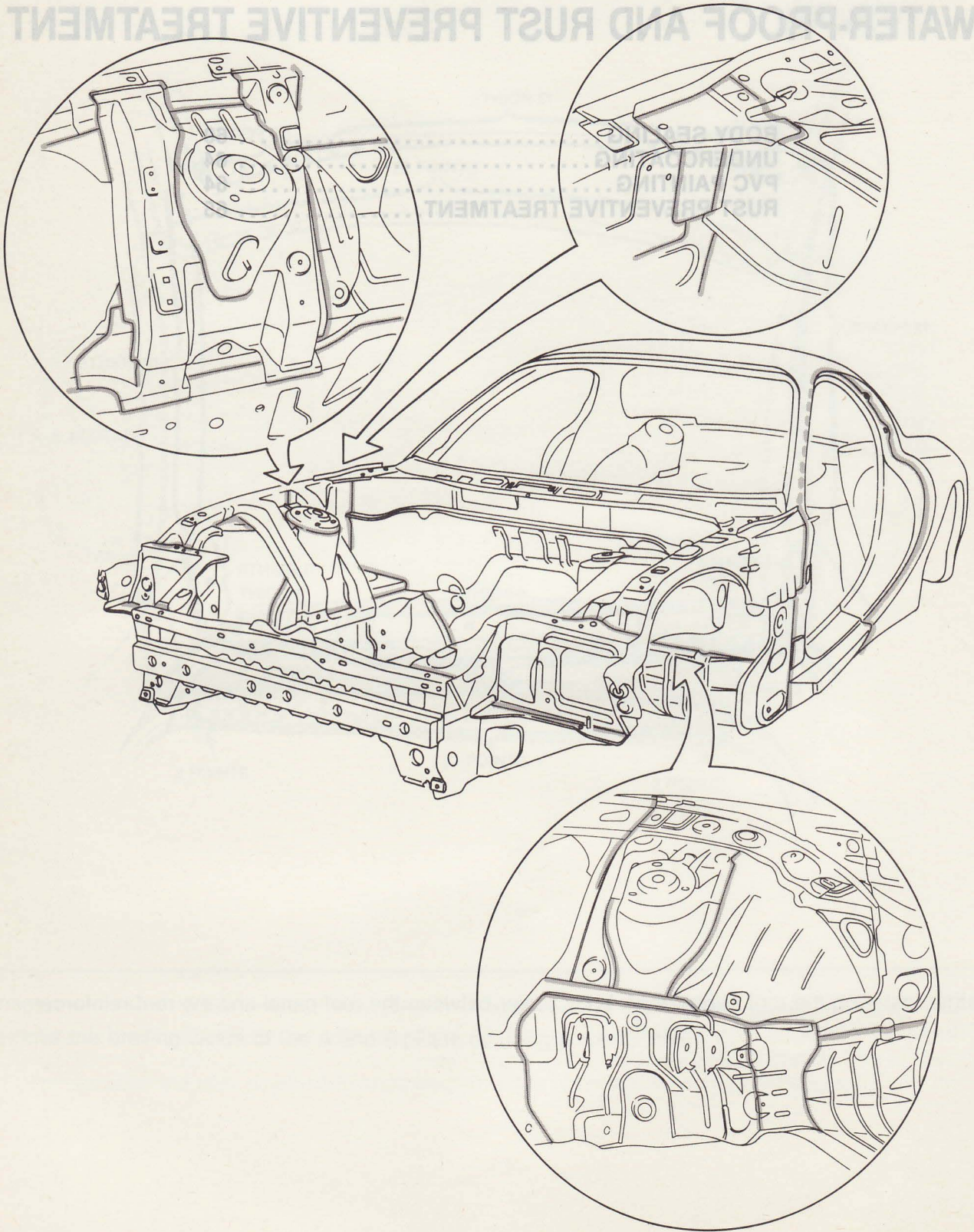


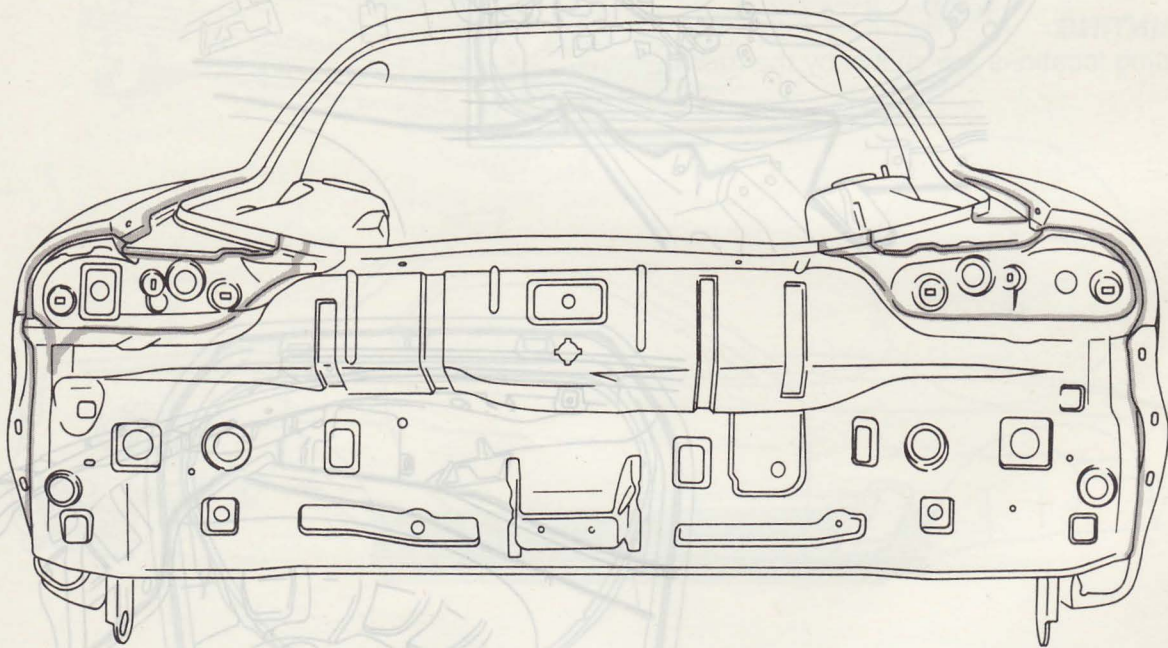
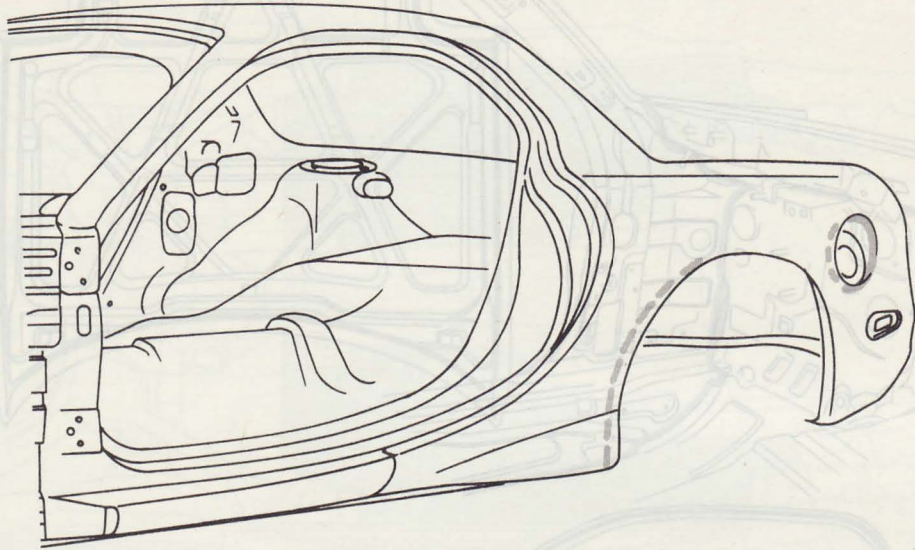
## WATER-PROOF AND RUST PREVENTIVE TREATMENT

### WATER-PROOF AND RUST PREVENTIVE TREATMENT

#### BODY SEALING

Sealant is applied to parts of the body where panels meet and to hemming parts of the door panel and the bonnet panel to provide waterproofing and rust-proofing.





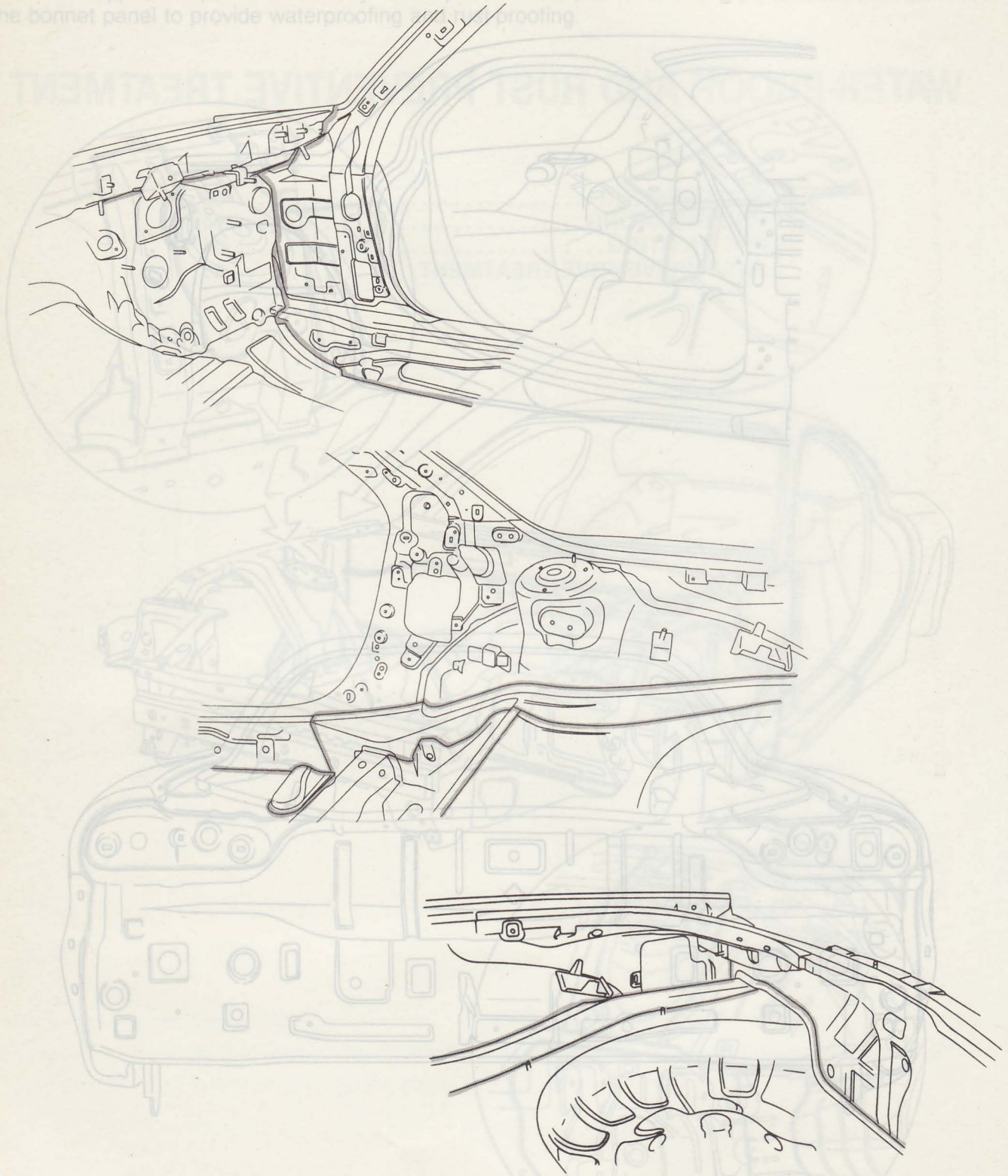
V

# WATER-PROOF AND RUST PREVENTIVE TREATMENT

## WATER-PROOF AND RUST PREVENTIVE TREATMENT

### BODY SEALING

Sealant is applied to parts of the body where panels meet and to herring parts of the door panel and the bonnet panel to provide waterproofing.

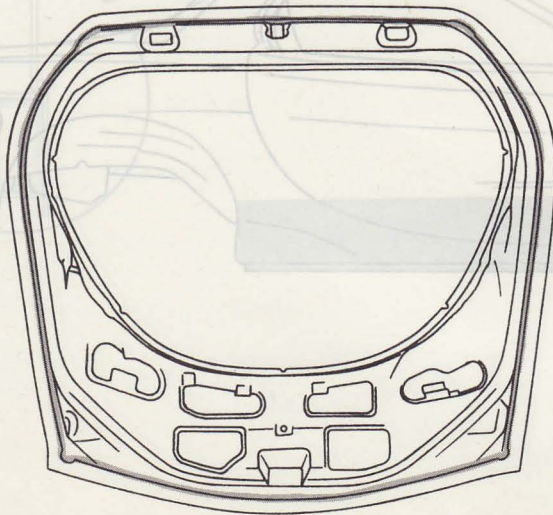
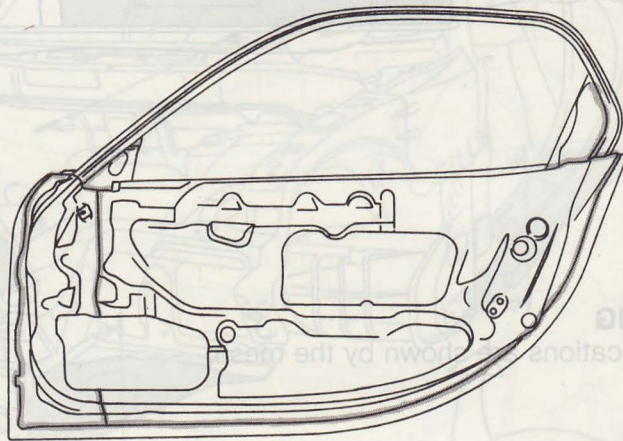
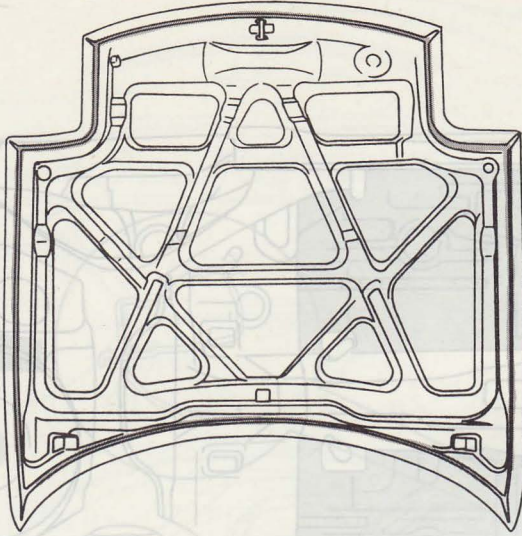


# WATER-PROOF AND RUST PREVENTIVE TREATMENT

RUST PREVENTIVE TREATMENT

The mesh areas of the underbody are undercoated to prevent noise and rattage and critical joints are

UNDERCOATING



V

PVC PAINTING  
The coating locations shown by the

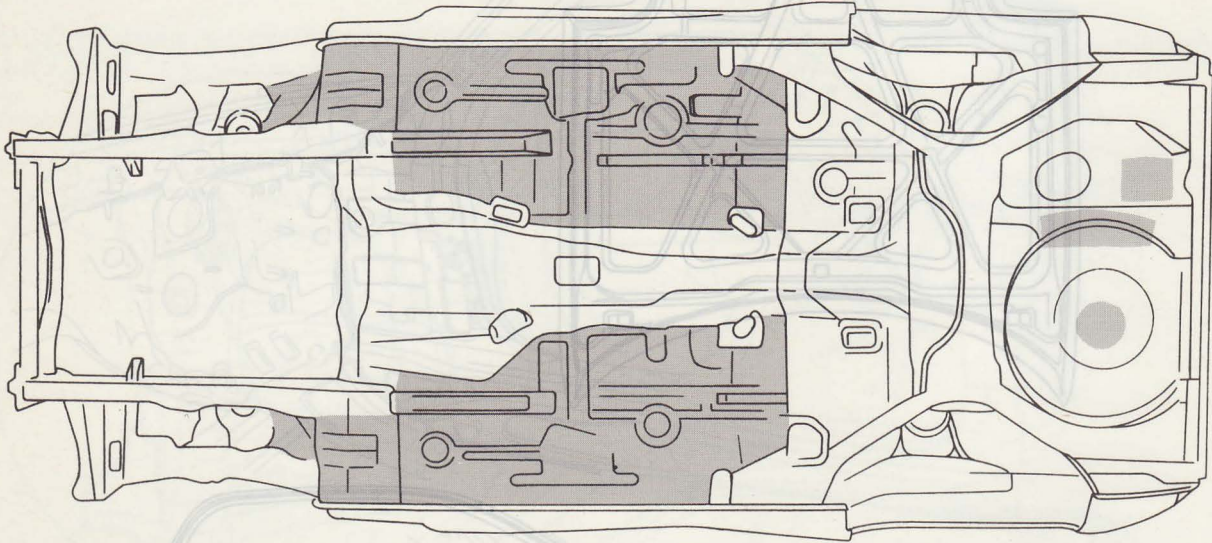


## WATER-PROOF AND RUST PREVENTIVE TREATMENT

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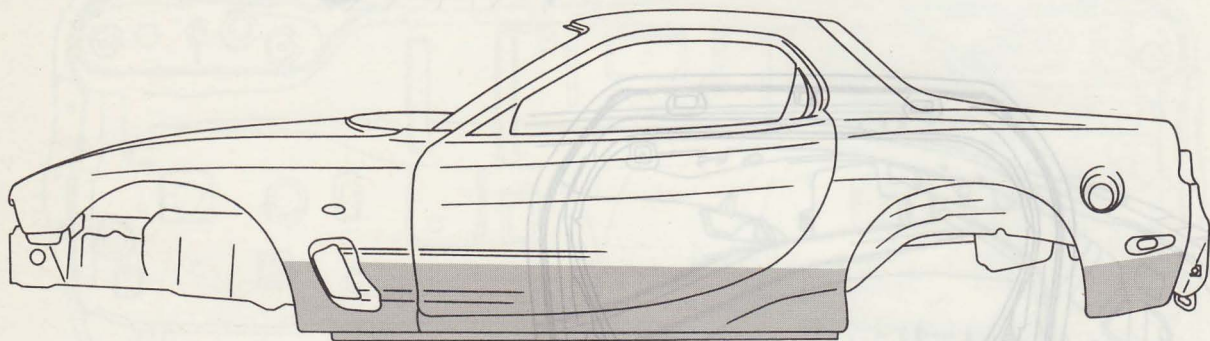
### UNDERCOATING

The mesh areas of the underbody are undercoated to prevent noise and rusting.



### PVC PAINTING

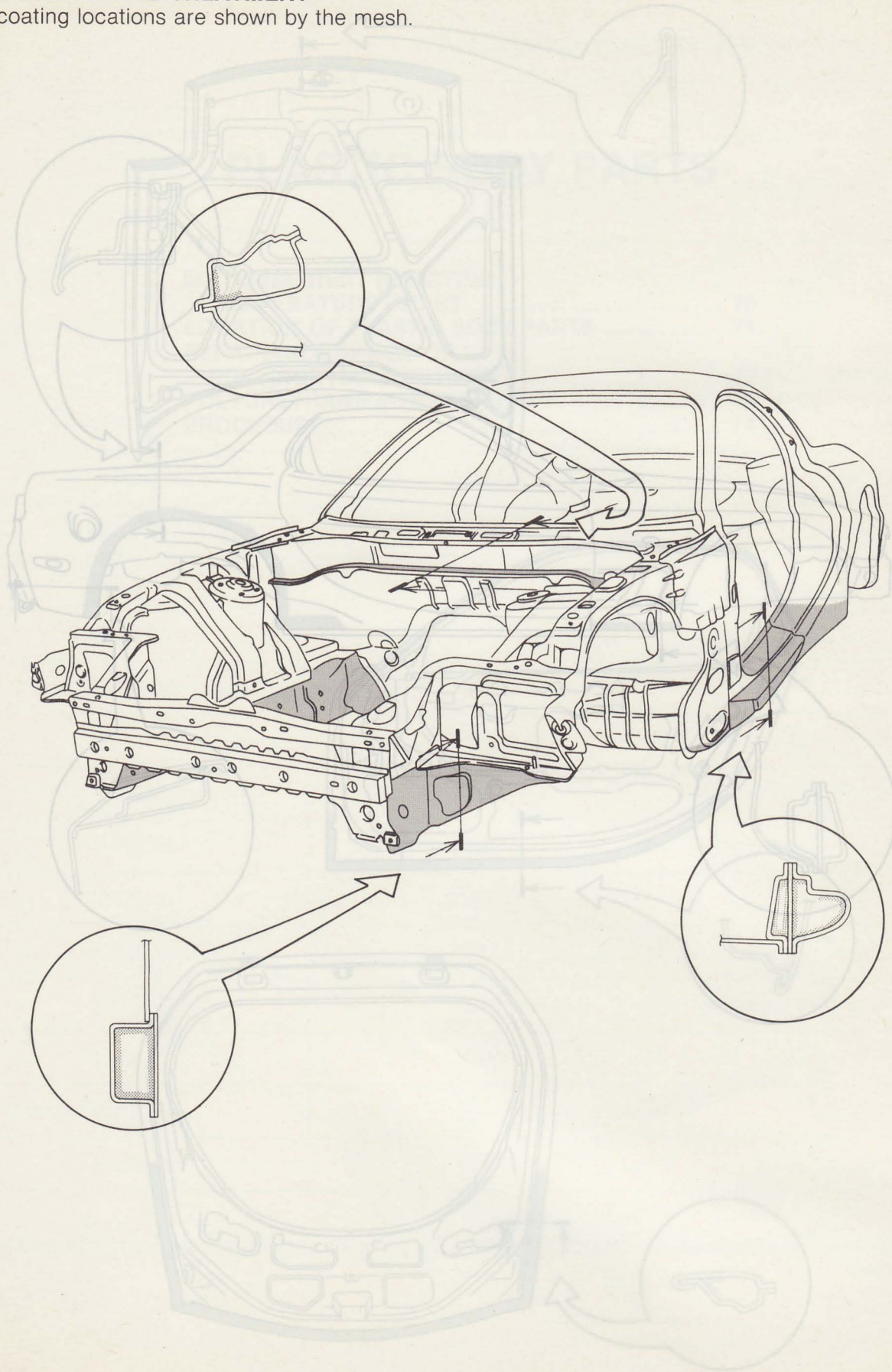
The coating locations are shown by the mesh.



# WATER-PROOF AND RUST PREVENTIVE TREATMENT

## RUST PREVENTIVE TREATMENT

The coating locations are shown by the mesh.



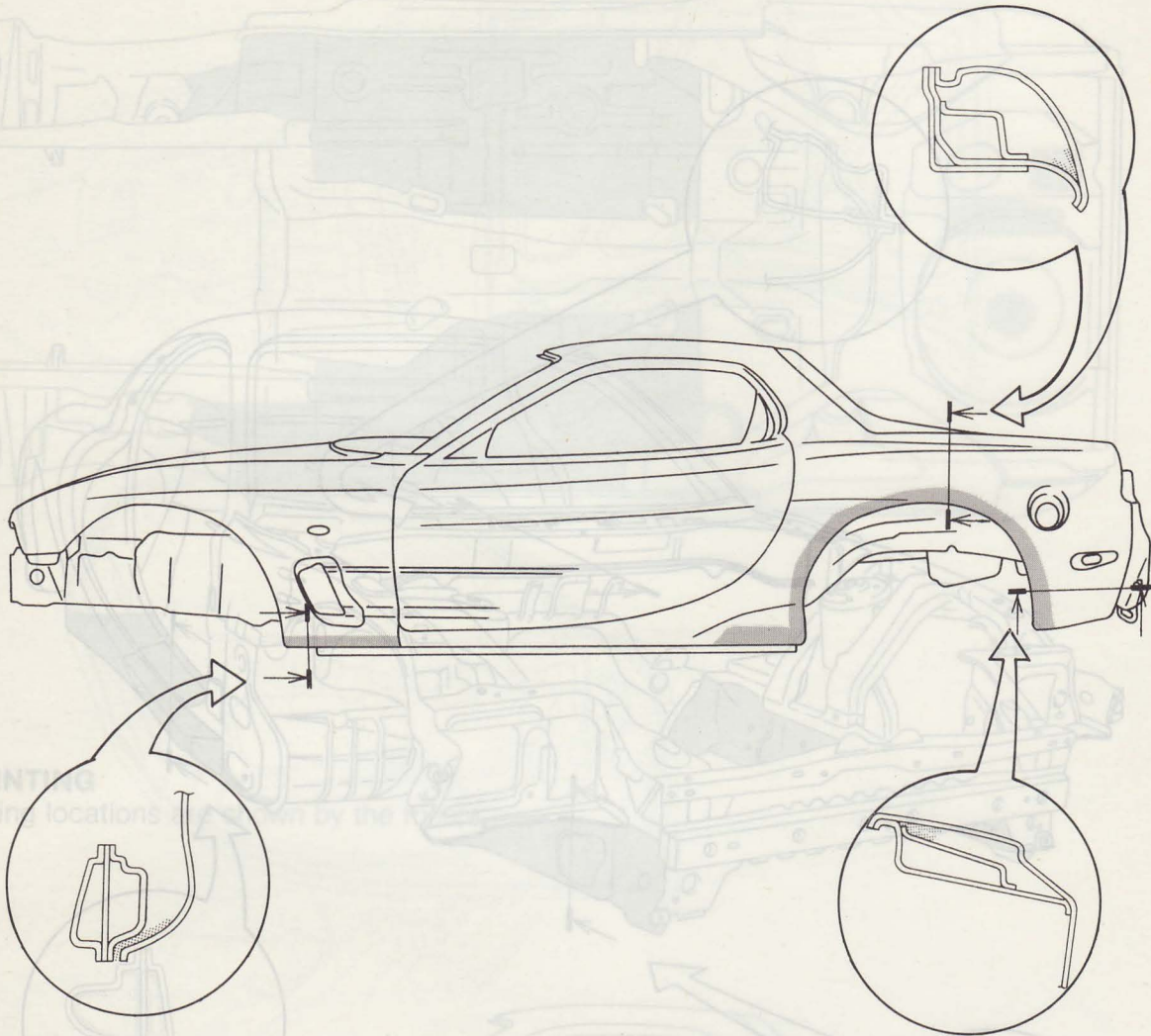
# WATER-PROOF AND RUST PREVENTIVE TREATMENT

## UNDERCOATING

The mesh areas of the underbody are undercoated to prevent rust. The coating locations are shown by the arrows.

## RUST PREVENTIVE TREATMENT

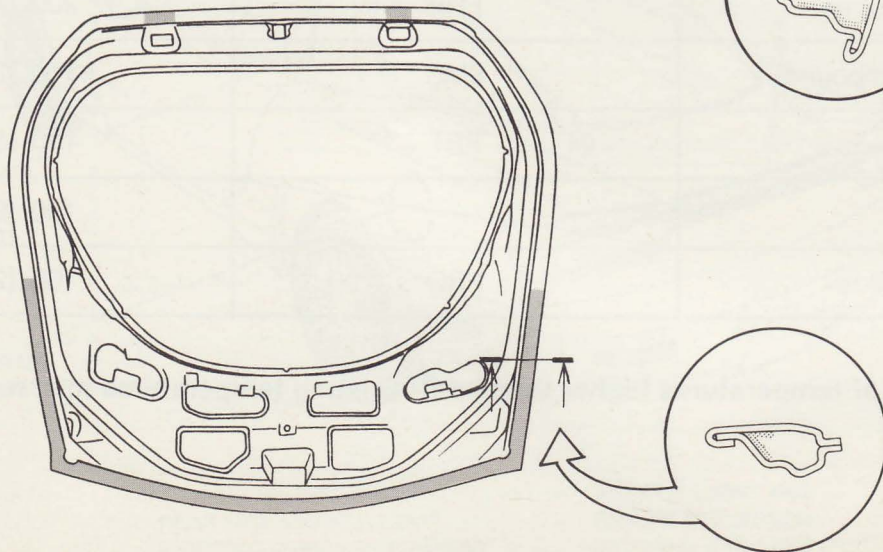
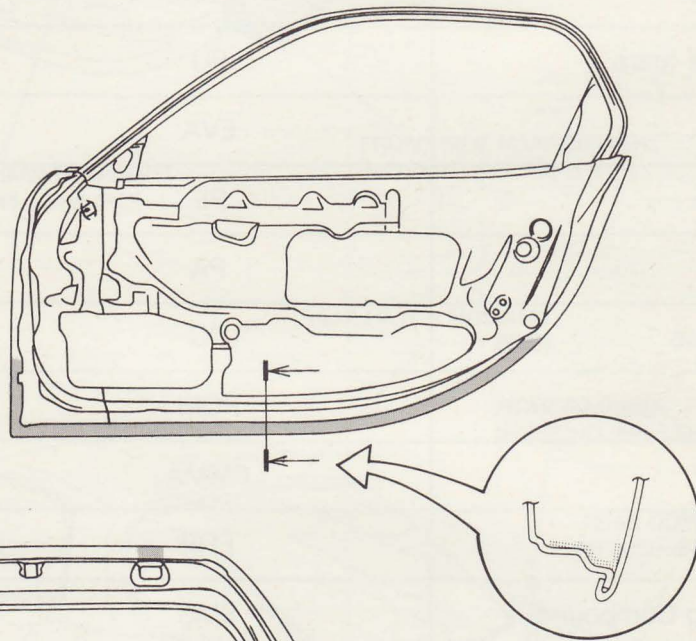
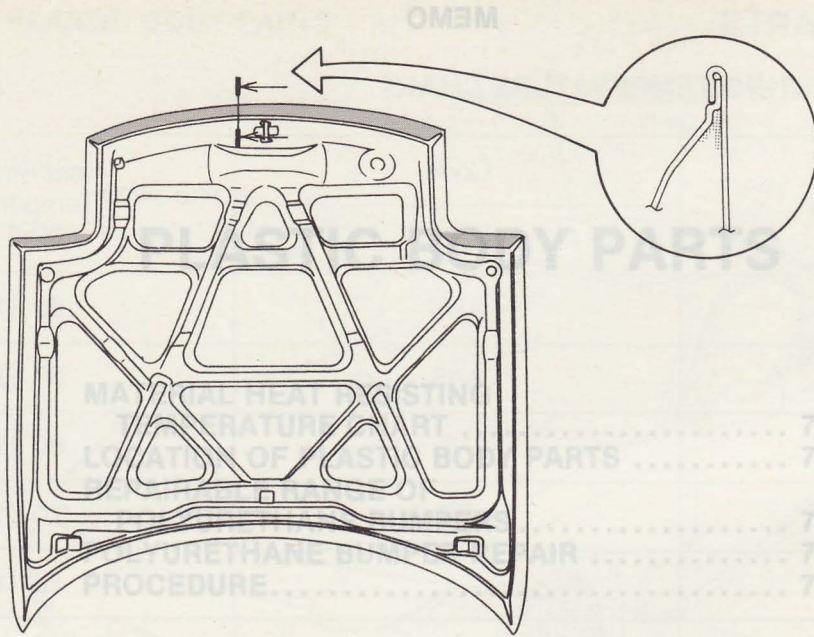
The coating locations are shown by the arrows.



## PVC PAINTING

The coating locations are shown by the arrows.

# WATER-PROOF AND RUST PREVENTIVE TREATMENT



Material Name	Code	Heat Resisting Temperature °C (°F)
ABS	ABS	80 (176)
AAS		80 (176)
AS		80 (176)
Polypropylene		70 (158)
Thermoplastic		70 (158)
Polyvinylchloride	PVC	65 (149)
Polyurethane	PU	80 (176)
Polyurethane foam	PU	80 (176)
EVA	EVA	40 (104)
Polyethylene	PE	40 (104)
Polyamide	PA	100 (212)
Polycarbonate	PC	100 (212)
Polyacetal	POM	125 (257)
Acrylic	BMA	75 (176)
Seat Molding Compound	SMC	110 (230)
PBT	PBT	150 (302)
Ionomer		100 (212)
Polyphenylene oxide	PRO	100 (212)

**MATERIAL HEAT RESISTING TEMPERATURE CHART** ..... 70

**LOCATION OF PLASTIC BODY PARTS** ..... 71

**REPAIRABLE RANGE OF POLYURETHANE BUMPERS** ..... 72

**POLYURETHANE BUMPER REPAIR PROCEDURE** ..... 73

..... 74

VI

Note: The application of temperatures higher than heat resisting temperatures may result in material deformation.

REAR SIDE MARKER LIGHT (HOUSING (ABS), LENS (PMMA))

BACKUP LIGHT AND REFLEX REFLECTOR (HOUSING (PP), LENS (PC))

## PLASTIC BODY PARTS

### PLASTIC BODY PARTS

MEMO

#### MATERIAL HEAT RESISTING TEMPERATURE CHART

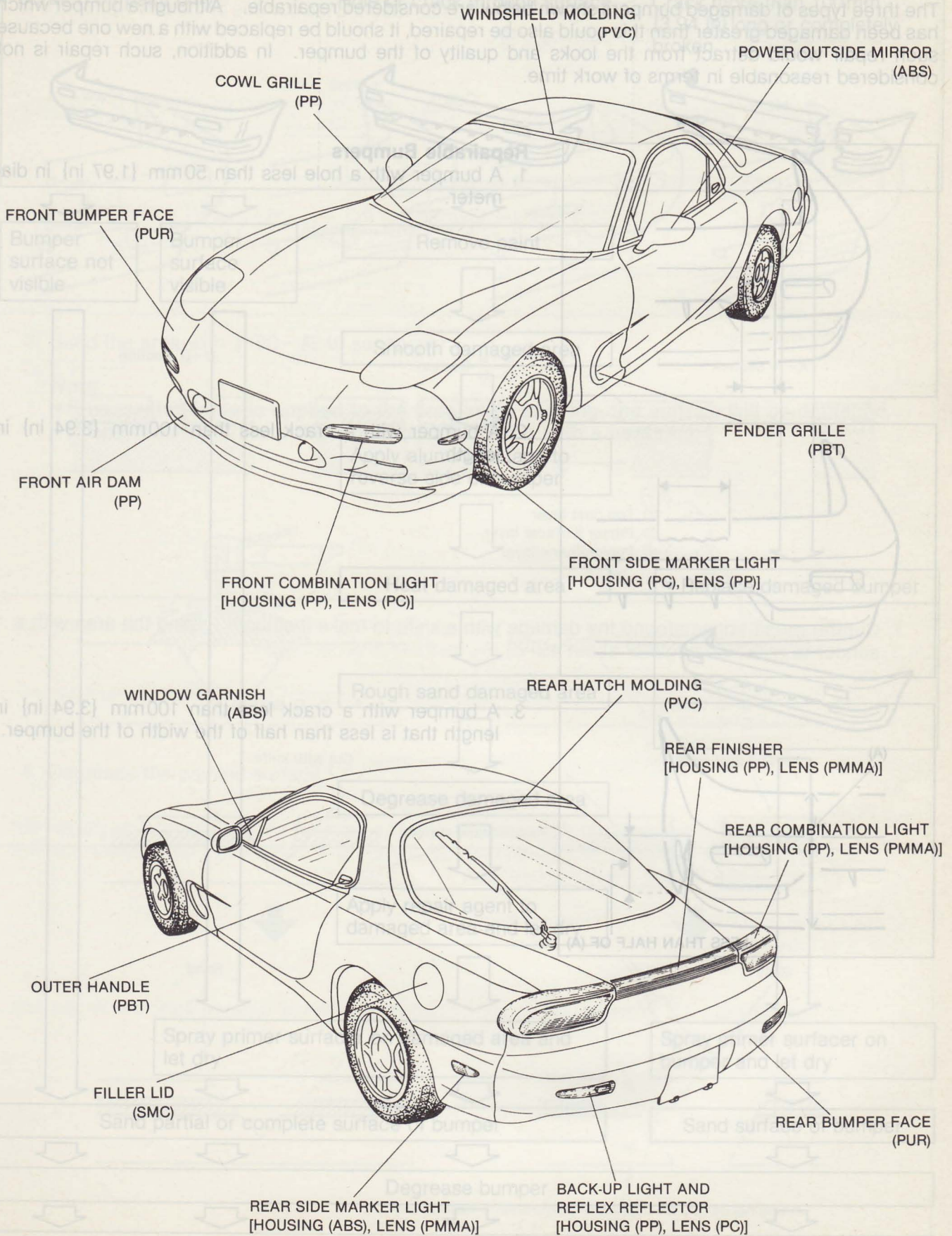
Material Name	Code	Heat Resisting Temperature °C {°F}
	JIS	
ABS	ABS	80 {176}
AAS	AAS	80 {176}
AS	AS	80 {176}
Polypropylene	PP	70 {158}
Thermoplastic		70 {158}
Polyvinylchloride	PVC	65 {149}
Polyurethane	PUR	80 {176}
Polyurethane foam	PU	80 {176}
EVA	EVA	40 {104}
Polyethylene	PE	40 {104}
Polyamide	PA	100 {212}
Polycarbonate	PC	130 {266}
Polyacetal	POM	125 {257}
Acrylic	PMMA	75 {176}
Fibrous Glass	FRP	200 {392}
Seat Molding Compound	SMC	110 {230}
PBT	PBT	150 {302}
Ionomer		100 {212}
Polyphenylene oxide	PRO	100 {212}

**Note**

- The application of temperatures higher than heat resisting temperatures may result in material deformation.

# PLASTIC BODY PARTS

## LOCATION OF PLASTIC BODY PARTS

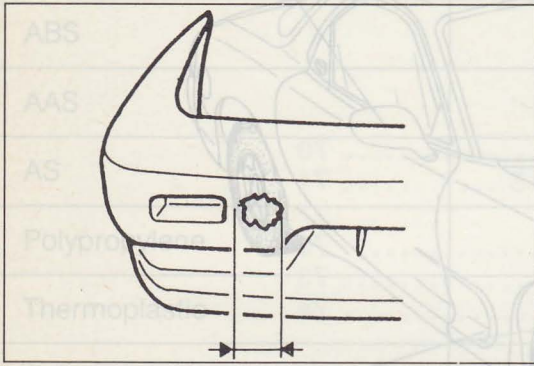


VI

## PLASTIC BODY PARTS

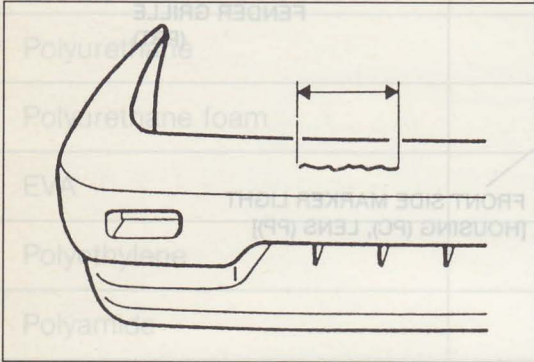
### REPAIRABLE RANGE OF POLYURETHANE BUMPERS

The three types of damaged bumpers shown below are considered repairable. Although a bumper which has been damaged greater than this could also be repaired, it should be replaced with a new one because such repair would detract from the looks and quality of the bumper. In addition, such repair is not considered reasonable in terms of work time.

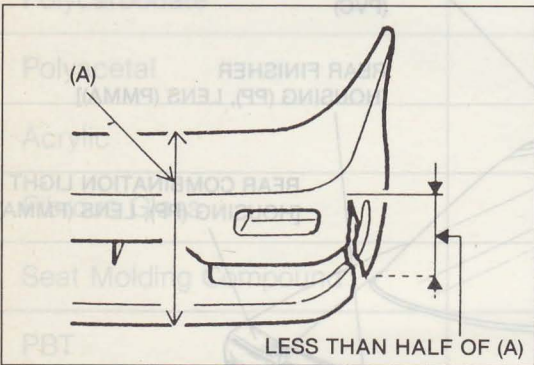


#### Repairable Bumpers

1. A bumper with a hole less than 50mm {1.97 in} in diameter.



2. A bumper with a crack less than 100mm {3.94 in} in length.



3. A bumper with a crack less than 100mm {3.94 in} in length that is less than half of the width of the bumper.

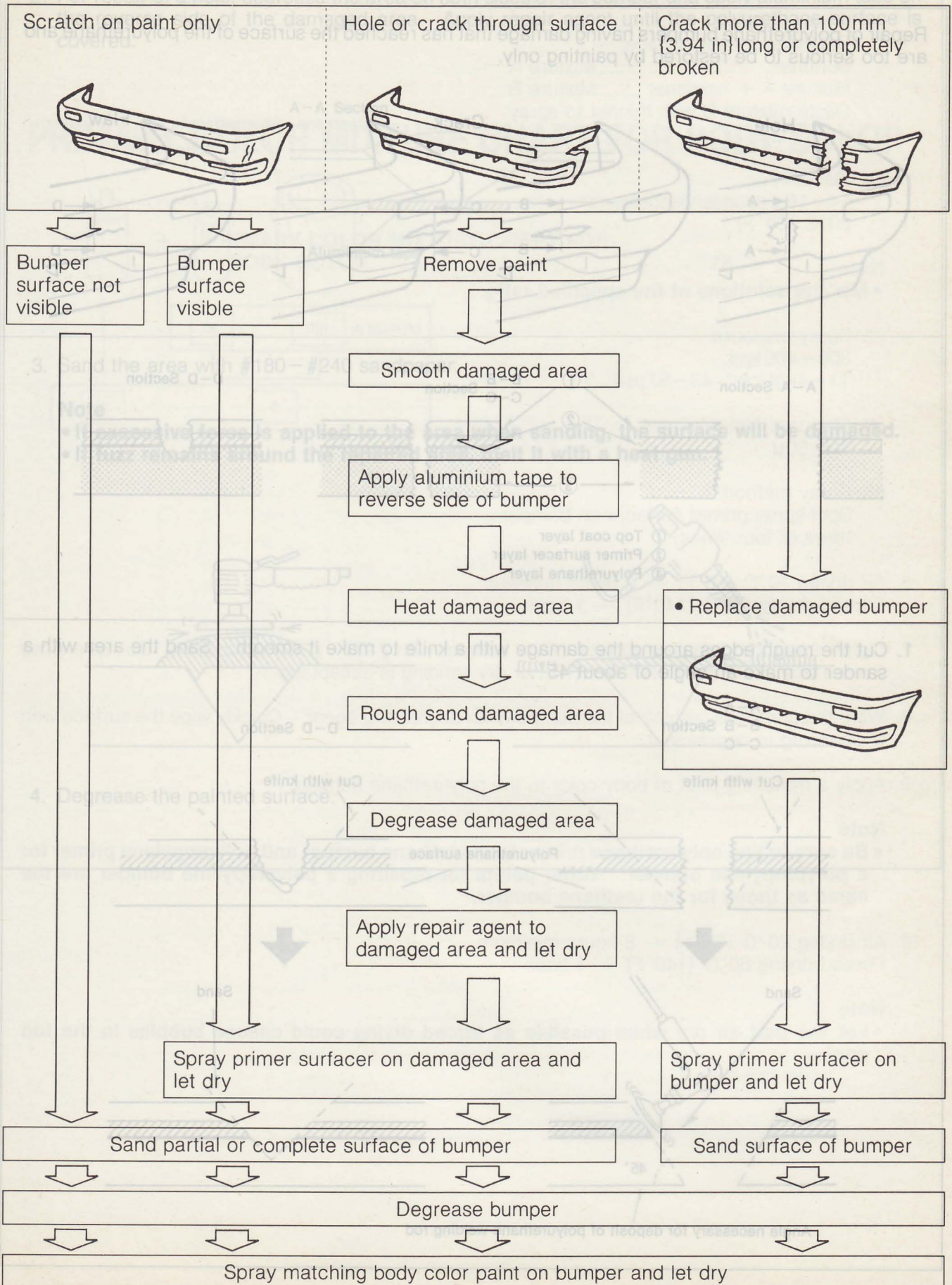
BACK-UP LIGHT AND  
REFLEX REFLECTOR  
[HOUSING (PP), LENS (PC)]

REAR SIDE MARKER LIGHT  
[HOUSING (ABS), LENS (PMMA)]



# PLASTIC BODY PARTS

## POLYURETHANE BUMPER REPAIR

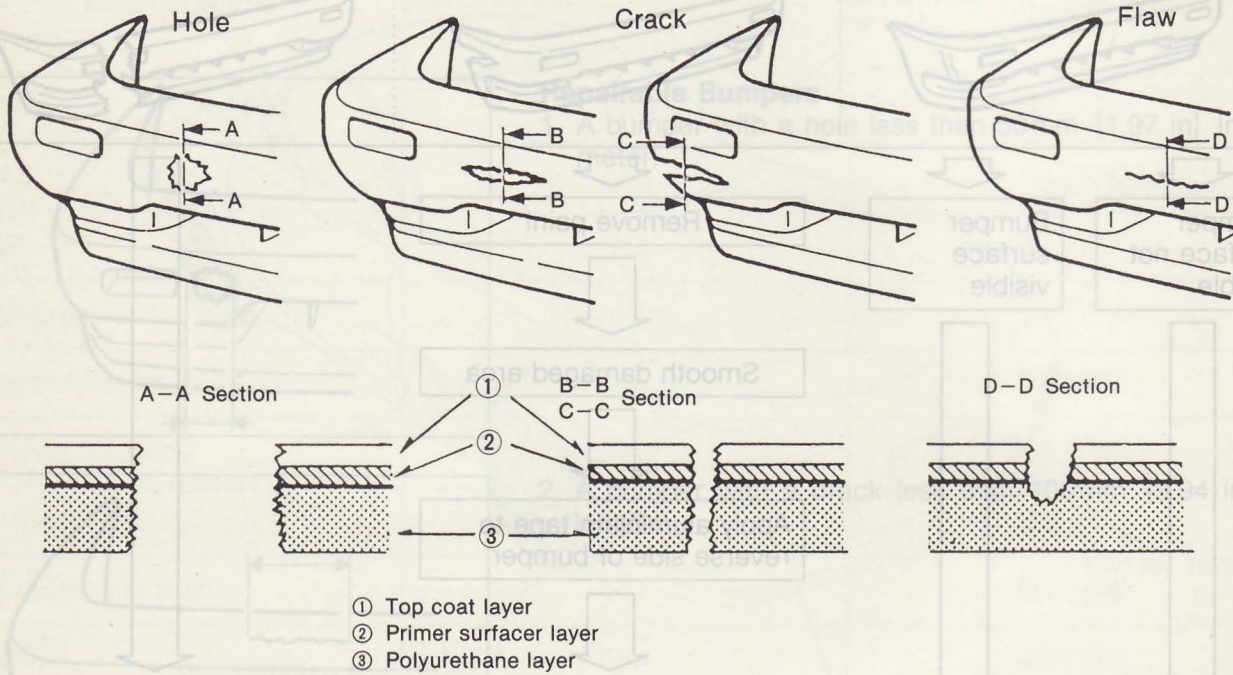


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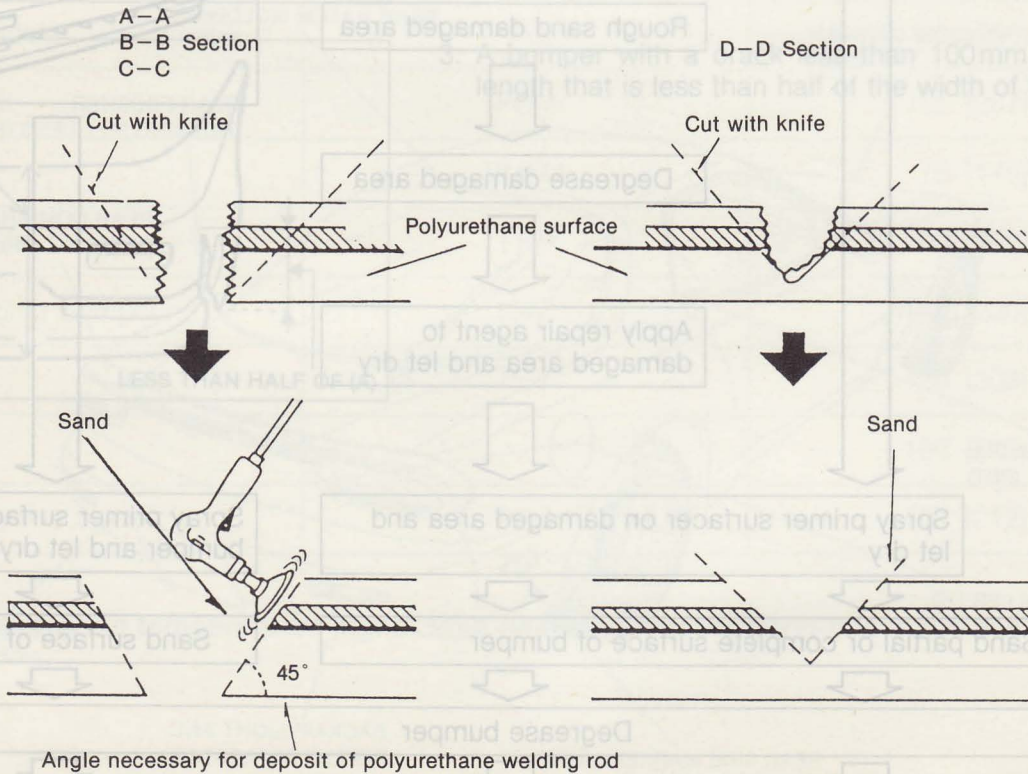
# PLASTIC BODY PARTS

## PROCEDURE

Repair of polyurethane bumpers having damage that has reached the surface of the polyurethane and are too serious to be restored by painting only.

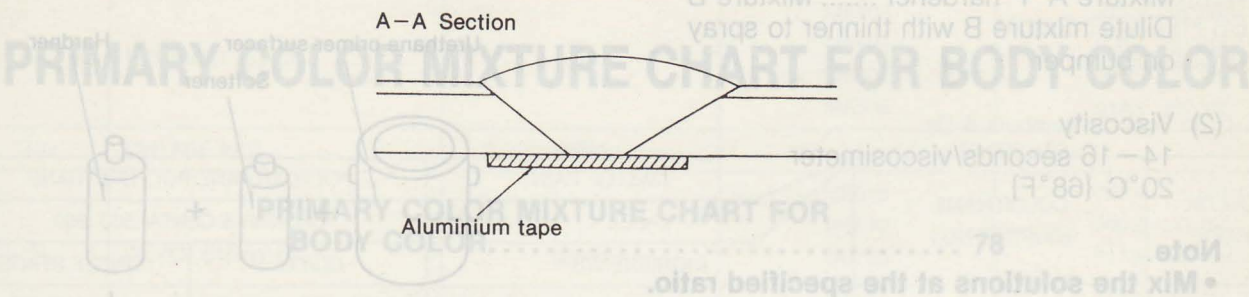


1. Cut the rough edges around the damage with a knife to make it smooth. Sand the area with a sander to make an angle of about 45°.



## PLASTIC BODY PARTS

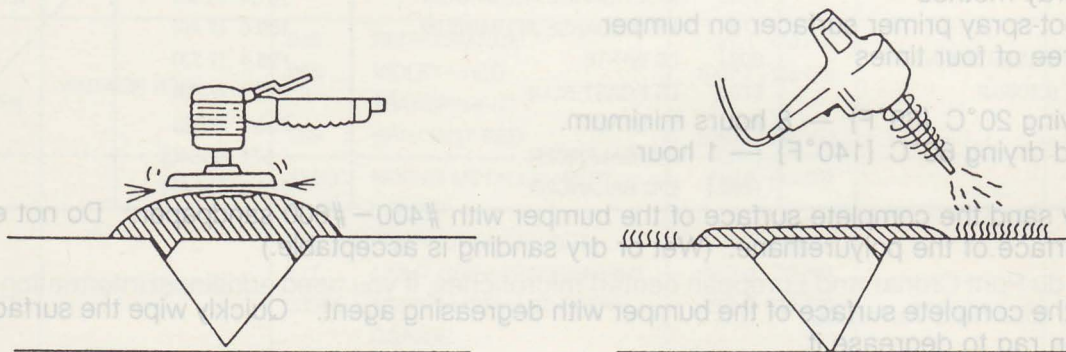
- For repair of a hole, degrease the area on both sides of the bumper and apply aluminium tape on the reverse side of the damaged area. Apply repair agent until the polyurethane surface is covered.



- Sand the area with #180–#240 sandpaper.

### Note

- If excessive force is applied to the area when sanding, the surface will be damaged.
- If fuzz remains around the repaired area, melt it with a heat gun.



- Degrease the painted surface.

## PLASTIC BODY PARTS

5. Add the softener to the urethane primer surfacer and spray it on the repaired area.

- (1) Mixing method  
 Urethane primer surfacer +  
 Softener ..... Mixture A  
 Mixture A + hardener ..... Mixture B  
 Dilute mixture B with thinner to spray  
 on bumper

- (2) Viscosity  
 14–16 seconds/viscosimeter  
 20°C {68°F}

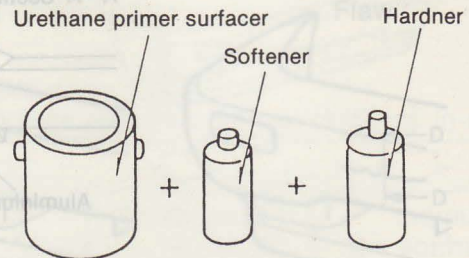
**Note**

• Mix the solutions at the specified ratio.

- (3) Spray pressure  
 300–400 kpa  
 {3–4 kgf/cm<sup>2</sup>, 43–57 psi}

- (4) Standard film thickness  
 30–50µ

- (5) Spray method  
 Spot-spray primer surfacer on bumper  
 three of four times



6. Air drying 20°C {68°F} — 8 hours minimum.  
 Forced drying 60°C {140°F} — 1 hour

7. Lightly sand the complete surface of the bumper with #400–#600 sandpaper. Do not expose the surface of the polyurethane. (Wet or dry sanding is acceptable.)

8. Wipe the complete surface of the bumper with degreasing agent. Quickly wipe the surface with a clean rag to degrease it.

9. Apply a matching coat of body color to the polyurethane bumper.

**Note**

• Be sure to use only urethane primer for a urethane bumper and polypropylene primer for a polypropylene bumper. Other paints for repairing a polypropylene bumper are the same as those for the urethane bumper.

10. Air drying 20°C {68°F} — 8 hours minimum.  
 Forced drying 60°C {140°F} — 1 hour

**Note**

• Let the part air dry when possible as forced drying could casuse bubbles in the top coat.

SPIES HECKER

PRIMARY COLOR MIXTURE CHART FOR BODY COLOR

PRIMARY COLOR MIXTURE CHART FOR BODY COLOR

COLOR CODE	BODY COLOR	KIND OF PAINT	PREPARED BY	COLOUR NAME (DUP. NO.)	COLOR CODE (DUP. NO.)
92	BRIGHT BLACK (45034)				
93	SILVER STONE M (10988)				
94	VINTAGE RED				
95	PERMACON				
96	STANDOX				
97	READY MIX				
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VII

# PRIMARY COLOR MIXTURE CHART FOR BODY COLOR

## PRIMARY COLOR MIXTURE CHART FOR BODY COLOR

This is the primary color mixture chart for Mazda vehicle body colors.  
 Please use the paint available in your country.  
 E.L. du Pont de Nemours & Co. (Inc.)  
 Herberts GmbH  
 SPIES HECKER GmbH  
 Akzo Coatings

© E. L. du Pont de Nemours & Co.

COLOR CODE	COLOR NAME (DUPONT NO.)	KIND OF PAINT		POLYOXITHANE/POLYURETHANE	
		LABEL		CRONAR & CENTAI 500. 600	
		INGREDIENTS		CC/CC.	SINGLE STAGE
PZ	BRILLIANT BLACK (45034J)	806J	HS BLACK	/	109.6 {3.87}
		882J	LS YELLOW OXIDE		118.2 {4.17}
		862J	TRANSPARENT RED		122.7 {4.33}
		870J	LS FAST BLUE		124.9 {4.41}
		832J	GREEN		127.0 {4.48}
		1888J	BINDER		801.6 {28.30}
		1889J	BALANCER		894.7 {31.58}
3L	SILVER STONE M. (L9088J)	814J	COARSE ALUMINIUM	108.9 {4.29}	/
		815J	MULTIGRADE ALUMINIUM	161.4 {6.35}	
		813J	MED COARSE ALUMINIUM	189.6 {7.46}	
		802J	LS WHITE	196.4 {7.73}	
		870J	LS FGAST BLUE	200.3 {7.89}	
		807J	LS BLACK	202.3 {7.96}	
		1850J	B/C BALANCER	571 {22.48}	
		1860J	B/C BALANCER	874.3 {34.42}	

Note:  
 Please look du Pont Cronar and European centari microfiches, if you need additional information as safety warning and alternate formulas.

© STANDOX

COLOR CODE	BODY COLOR	PERMACRON	MIXING NUMBER	g {oz}
		STANDOX REFERENCE NUMBER		
PZ	BRILLIANT BLACK	PZ	571	870.5 {30.73}
			574	897.1 {31.67}
			567	905.9 {31.98}
			570	911.2 {32.17}
NU	VINTAGE RED	NU	READY MIX	
3L	SILVER STONE M	3L	593	727.4 {25.68}
			598	900.6 {31.79}
			008	917.9 {32.40}
			563	929.2 {32.80}
			570	935.3 {33.02}

## PRIMARY COLOR MIXTURE CHART FOR BODY COLOR

© SPIES HECKER

COLOR CODE	BODY COLOR	PERMACRON	MIXING NUMBER	g {oz}
		STANDOX REFERENCE NUMBER		
PZ	BRILLIANT BLACK	78261	MB502	873.9 {30.85}
			MB505	900.7 {31.79}
			MB501	906.0 {31.98}
			MB506	914.9 {32.30}
NU	VINTAGE RED	38961	READY MIX	
3L	SILVER STONE M	98801	MB513	727.4 {25.68}
			MB510	900.6 {31.79}
			MB799	917.9 {32.40}
			MB527	929.2 {32.80}
			MB501	935.3 {33.02}

© AKZO

COLOR CODE ( ): AKZO'S	BODY COLOR	NAME OF PAINT		AUTOBASE g {oz}	AUTOCRYL g {oz}	AUTONOVA g {oz}
		PRIMARY COLOR				
PZ (MAZ 4145)	BRILLIANT BLACK	242	DEEP BLACK		986.0 {34.81}	
NU (MAZ 3853)	VINTAGE RED	563	RED-ORANGE	527.1 {18.61}		
		956	VIOLET-RED TRANSPARENT	1007.1 {35.55}		
		359	BRILLIANT RED	1040.2 {36.72}		
3L (MAZ 9307)	SILVER STONE M	333CC	MIXING METALLIC, VERY COARSE	414.5 {14.63}		
		666	CORRECTION BINDER	829.0 {29.26}		
		777	LIGHT GREY TRANSPARENT	922.3 {32.56}		
		333EC	MIXING METALLIC, EXTRA COARSE	943.0 {33.29}		
		00	WHITE	935.4 {33.66}		
		744	MIXING BLACK	957.5 {33.80}		
J9 (MAZ 9545)	COMPETITION YELLOW	<u>First coat</u>				
		297	LIGHT YELLOW	903.0 {35.55}		
		579	ORANGE-YELLOW TRANSPARENT	974.8 {38.38}		
		00	WHITE	998.8 {39.32}		
		400	DEEP BLACK	1000.4 {39.39}		
		<u>Second coat</u>				
		666	CORRECTION BINDER	759.6 {29.91}		
		333PG	YELLOW (GOLD) PEARL- EFFECT MIXING COLOR	941.0 {37.05}		
		558	LIGHT OXIDE YELLOW	947.8 {37.31}		
		00	WHITE	950.0 {37.40}		

VII

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