2004-2009 Mazda3 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 North American Operations reserves the right to alter the specifications and contents of this manual without obligation or advance notice.

Mazda Motor Corporation
HIROSHIMA, JAPAN

CONTENTS

APPLICATION:
This manual is applicable to vehicles beginning with the Vehicle Identification Numbers (VIN), shown on the following page.

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Part No. 9999–95–036F–04

VEHICLE IDENTIFICATION NUMBERS (VIN)

JM1	BK123*4#	100001—
JM1	BK223*4#	100001—
JM1	BK323*4#	100001—
JM1	BK12F*4#	100001—
JM1	BK22F*4#	100001—
JM1	BK32F*4#	100001—
JM1	BK143*4#	100001—
JM1	BK243*4#	100001—
JM1	BK343*4#	100001—

GENERAL INFORMATION

00
SECTION

00–00 GENERAL INFORMATION

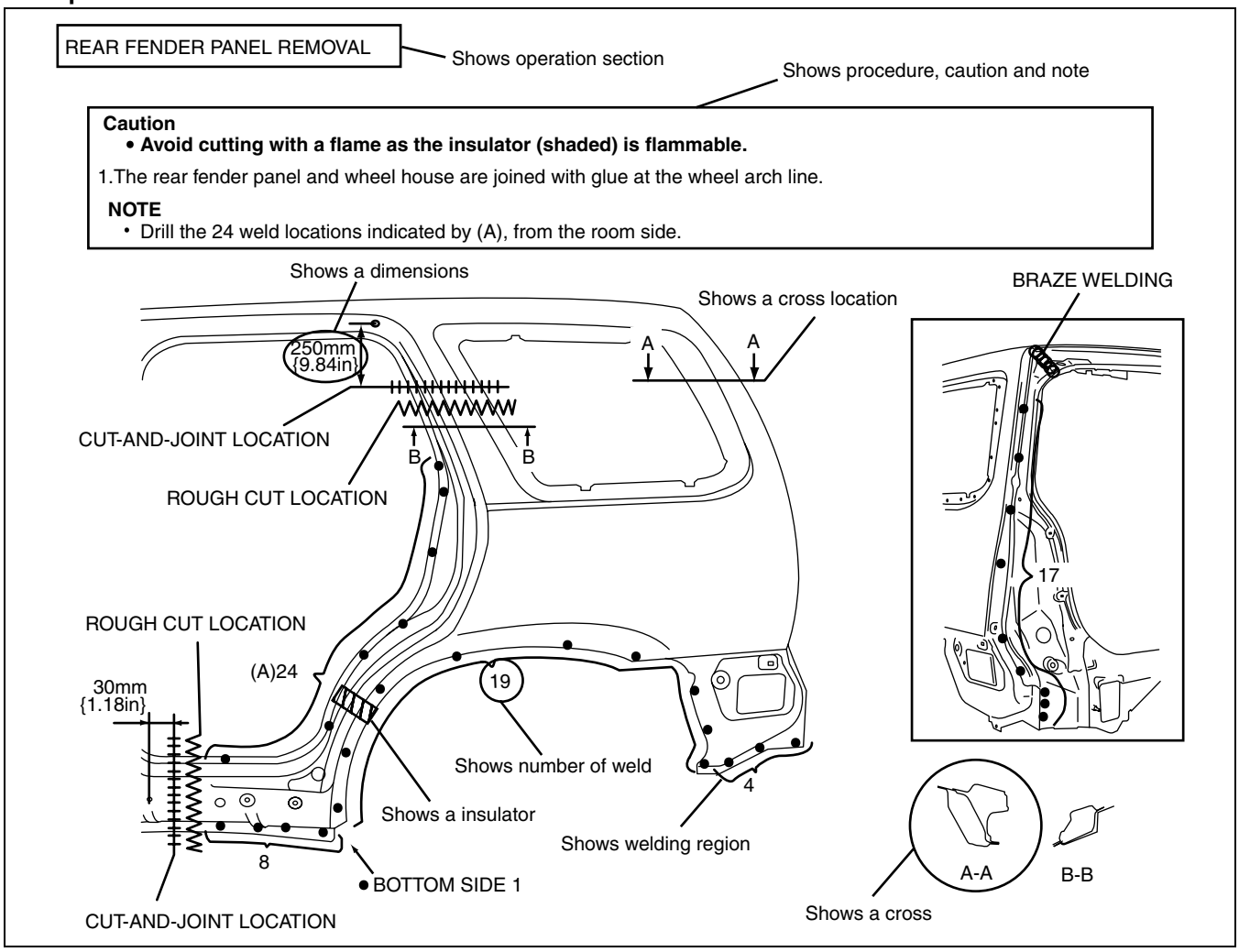
HOW TO USE THIS MANUAL

C3U000000000B01

Efficient Replacement of Body Panels

- This section contains information on the body panels in regard to the welding types, number of spot welds, and cut-and-join locations that are necessary for panel removal and installation.
- The type of weld and position are indicated by symbols.
- Some sections have notes concerning the operation being performed. Thoroughly read and understand the notes before carrying out any procedures.

Example



MZZ2010B001

Symbols of Panel Replacement

- The following 6 symbols are used to indicate the type of weld that is used when replacing body panels.

SYMBOL	MEANING
●	Spot welding
■	CO^2 arc welding (plug welding)
+	CO^2 spot welding

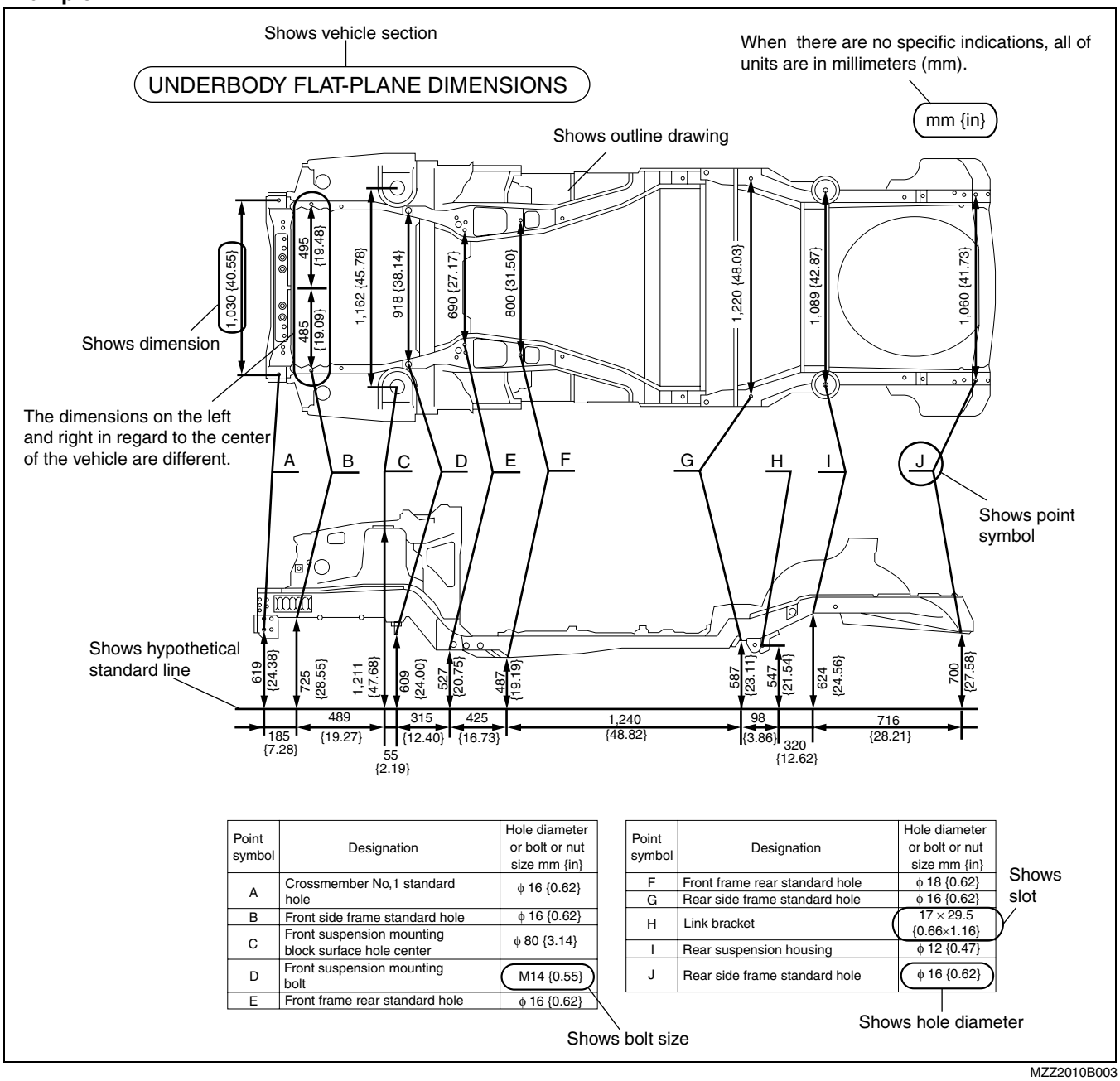
SYMBOL	MEANING
|||||	Continuous MIG welding (Cut-and-join location)
○○○	Braze welding
⩘⩘	Rough cut location

MZZ2010B002

Body Dimensions (Flat-plane Dimensions)

- Flat-plane dimensions are the dimensions measured by projecting certain reference points onto a plane surface.
- When there are no specific indications, the standard points and dimensions are symmetrical in regard to the center of the vehicle.
- The hypothetical lines may differ according to the vehicle model.

Example



Point symbol	Designation	Hole diameter or bolt or nut size mm {in}
A	Crossmember No,1 standard hole	ϕ 16 {0.62}
B	Front side frame standard hole	ϕ 16 {0.62}
C	Front suspension mounting block surface hole center	ϕ 80 {3.14}
D	Front suspension mounting bolt	M14 {0.55}
E	Front frame rear standard hole	ϕ 16 {0.62}

Shows bolt size

Point symbol	Designation	Hole diameter or bolt or nut size mm {in}
F	Front frame rear standard hole	ϕ 18 {0.62}
G	Rear side frame standard hole	ϕ 16 {0.62}
H	Link bracket	17 × 29.5 {0.66×1.16}
I	Rear suspension housing	ϕ 12 {0.47}
J	Rear side frame standard hole	ϕ 16 {0.62}

Shows slot

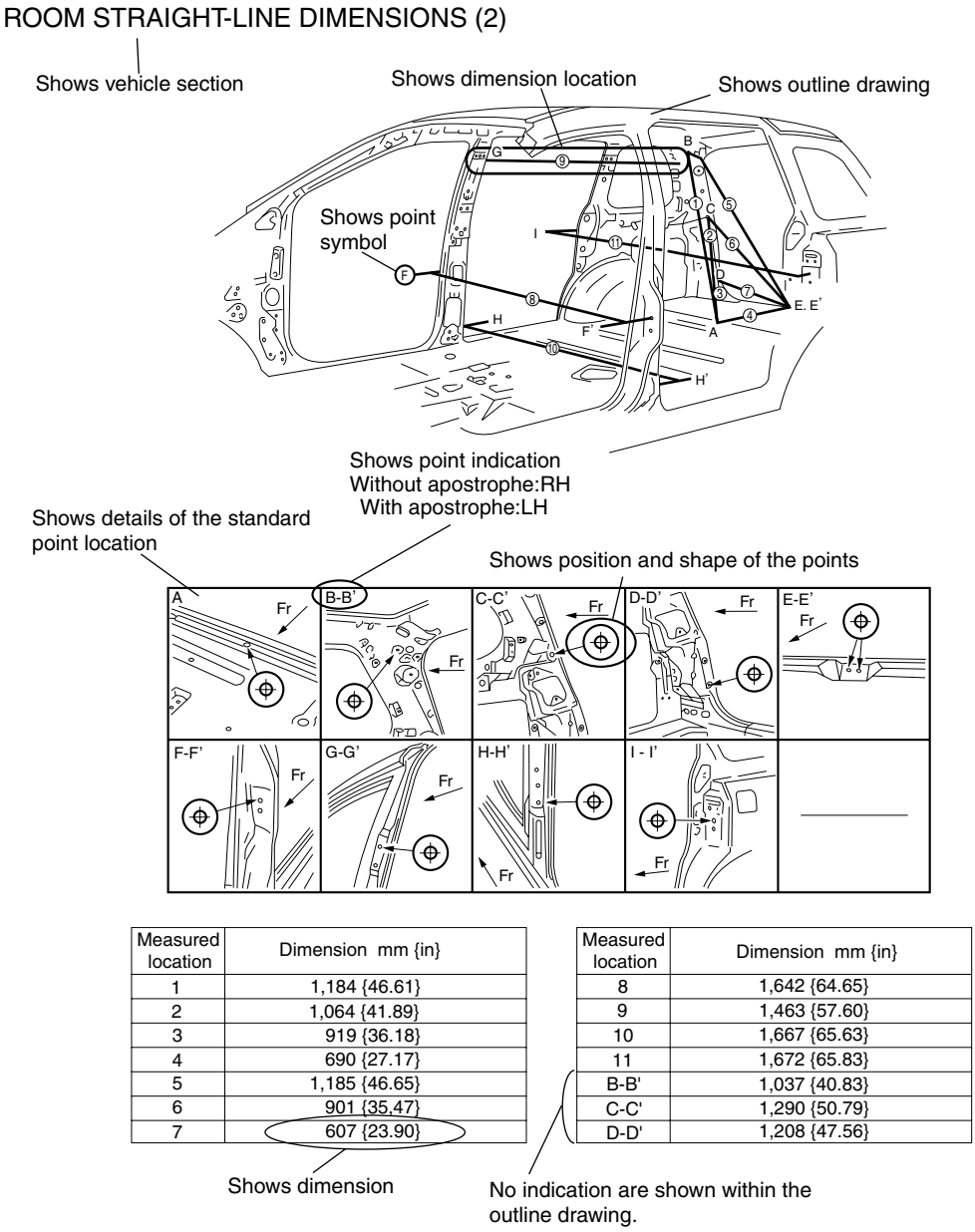
Shows hole diameter

MZZ2010B003

Body Dimensions (Straight-line Dimensions)

- Straight-line dimensions are the actual dimensions between two standard points.
- When there are no specific indications, the standard points and dimensions are symmetrical in regard to the center of the vehicle.

Example



Measured location	Dimension mm {in}
1	1,184 {46.61}
2	1,064 {41.89}
3	919 {36.18}
4	690 {27.17}
5	1,185 {46.65}
6	901 {35.47}
7	607 {23.90}

Measured location	Dimension mm {in}
8	1,642 {64.65}
9	1,463 {57.60}
10	1,667 {65.63}
11	1,672 {65.83}
B-B'	1,037 {40.83}
C-C'	1,290 {50.79}
D-D'	1,208 {47.56}

MZZ2010B004

Symbols of Body Dimensions

- The following 8 symbols are used to indicate the standard points.

SYMBOL	MEANING
⊕	Center of circular hole
⊕	Center elliptical hole
⊕	Notch
⊕	Panel seam, bead, etc.

SYMBOL	MEANING
← (arrow only)	Bolt tip
⊞	Center of rectangular-shaped hole
⊡	Edge of rectangular-shaped hole

MZZ2010B016

SERVICE PRECAUTIONS

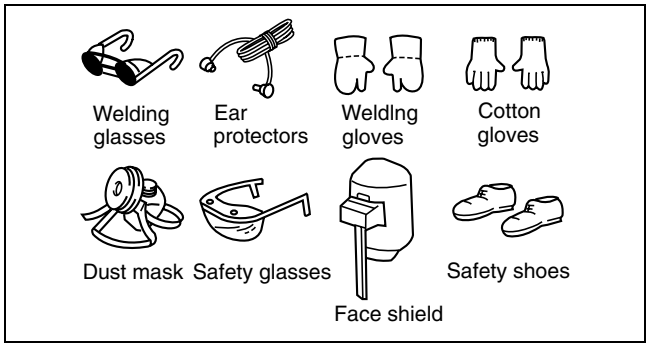
C3U000000000B02

Arrangement of Workshop

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

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.



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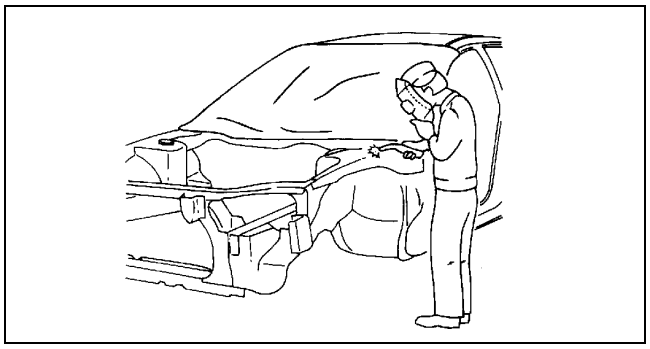
Vehicle Protection

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



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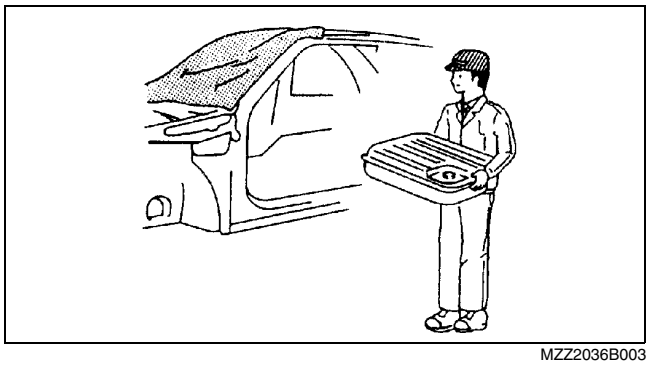
Remove Dangerous Articles

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



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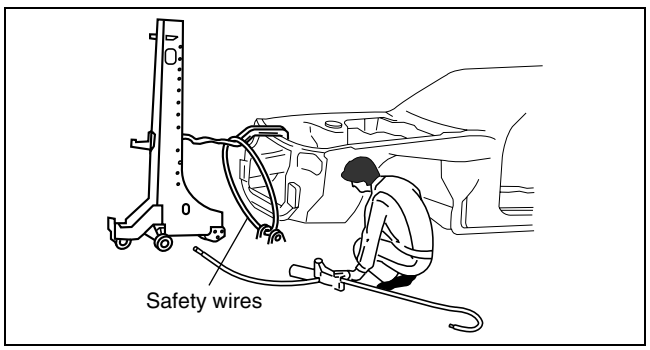
Use of Pulling Equipment

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



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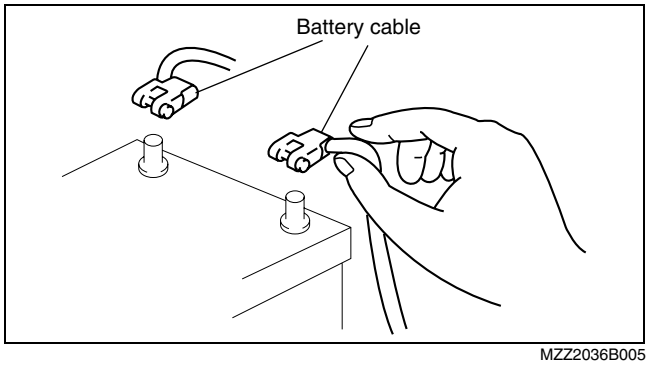
Prevent Short Circuits

- Turn the ignition switch to the LOCK position.
- Disconnect the battery cables.



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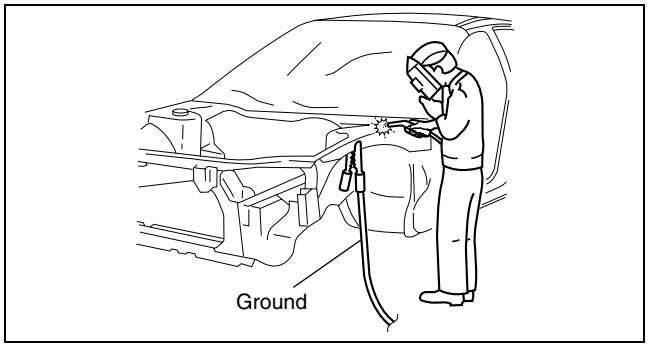
- Securely connect the welding machine ground near the welding area.



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EFFICIENT REMOVAL OF BODY PANELS

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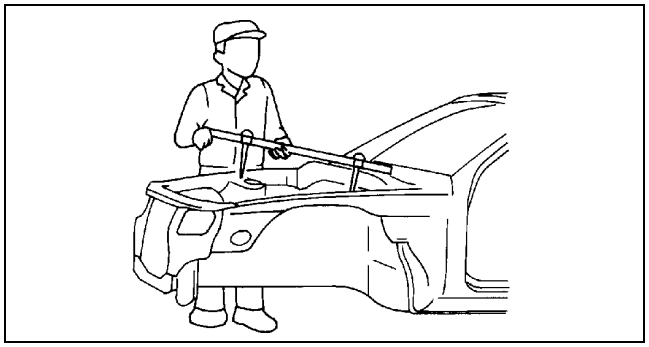
Body Measurements

- 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.



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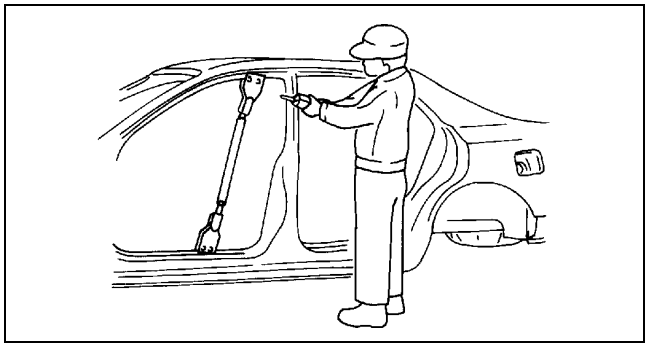
Prevention of Body Deformation

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



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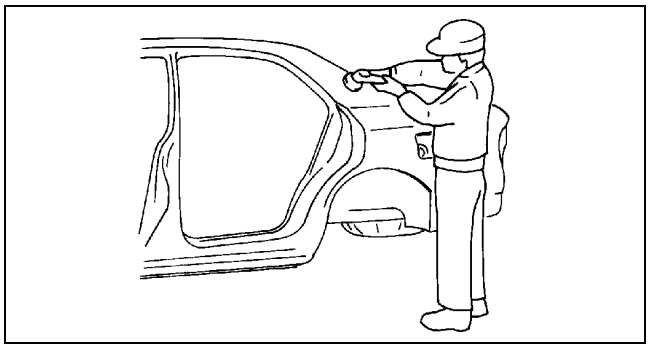
Selection of Cut-and-join Locations

- 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 minimal.



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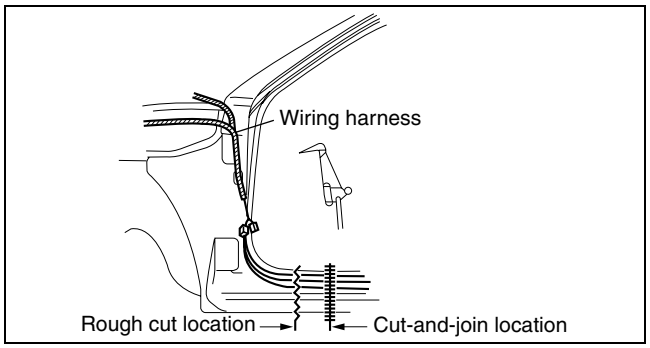
Removal of Associated Parts

- 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, and wiring harness) 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 rough-cut the damaged panel.



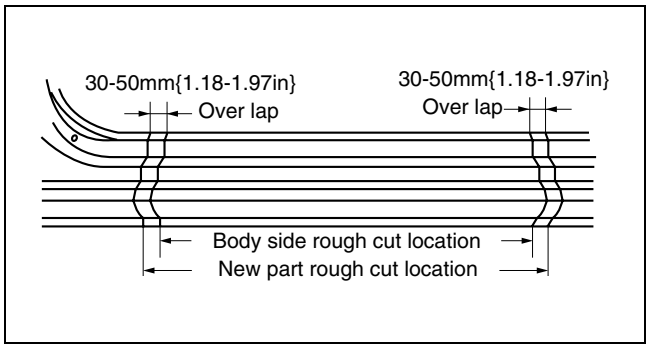
MZZ2038B001

INSTALLATION PREPARATIONS

C3U000000000B04

Rough Cutting of New Parts

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



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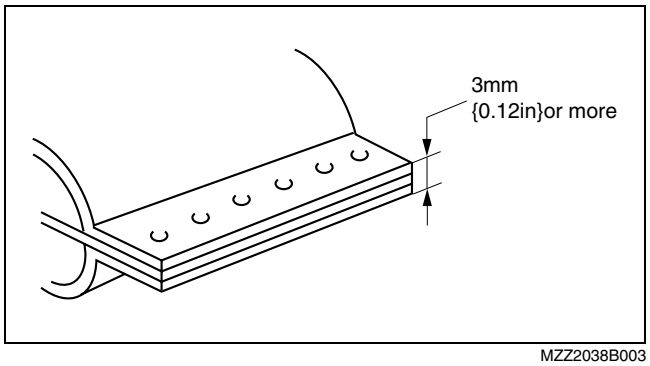
Determination of Welding Method

- If the total thickness at the area to be welded is 3 mm {0.12 in} or more, use a CO_2 gas shielded-arc welder to make the plug welds.



MZZ2038B003

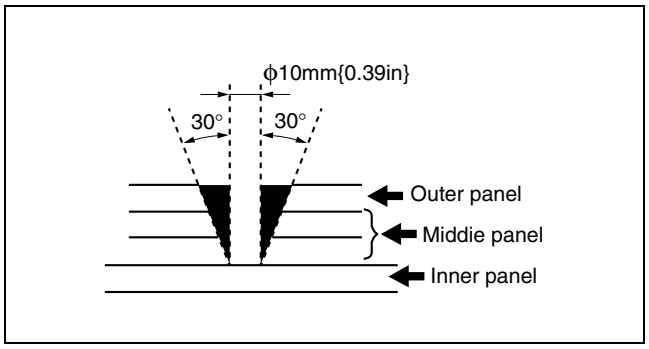
Making Holes for CO_2 Arc Welding

- For places that cannot be spot welded, make a hole for CO_2 arc welding using a punch or drill as follows.

(mm {in})

Panel thickness (ø)	Hole diameter (ø)
0.60—0.90 {0.02—0.03}	5 {0.19}
0.91—1.20 {0.04—0.05}	6 {0.23}
1.21—1.80 {0.051—0.07}	8 {0.31}
1.81—4.50 {0.071—0.17}	10 {0.39}

- Grind the shaded section indicated in the diagram below and create a hole in the part where the 3—4 plates are put together. Also, weld the plates together tightly so that gaps do not develop.



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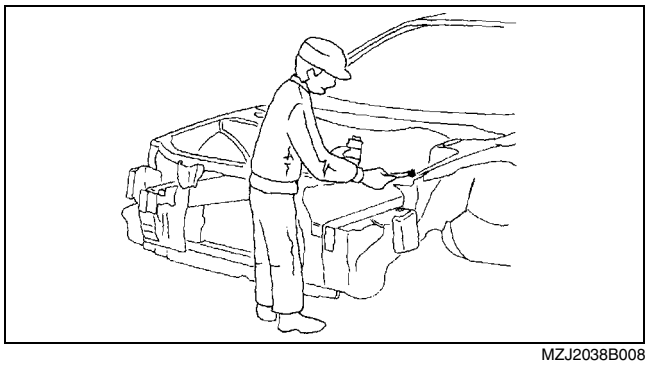
Application of Weld-through Primer

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



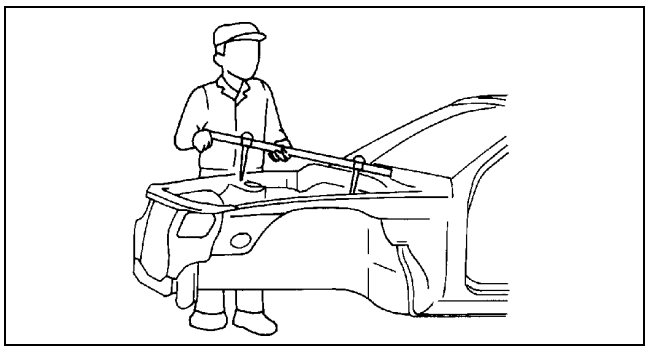
MZJ2038B008

EFFICIENT INSTALLATION OF BODY PANELS

C3U000000000B05

Checking Preweld Measurements And Watching

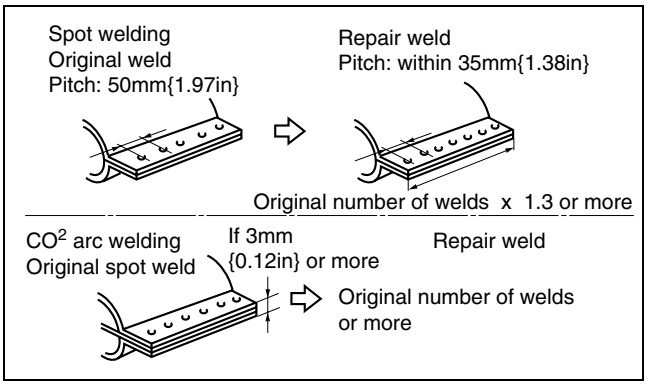
- Align to the standard reference dimensions, based upon the body dimensions illustration, so that new parts are installed in the correct position.



MZJ2038B009

Welding Notes

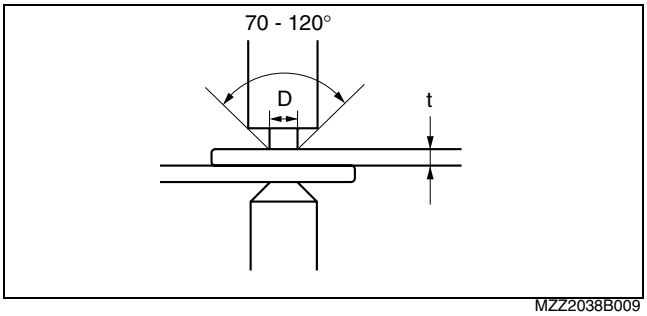
- For the number of weld points, welding should be performed in accordance with the following reference standards.



MZZ2038B005

Spot Welding Notes

- The shape of the spot welder tip is D=(2×t)+3. If the upper panel thickness is different from that of the under panel, adjust to the thinner one.



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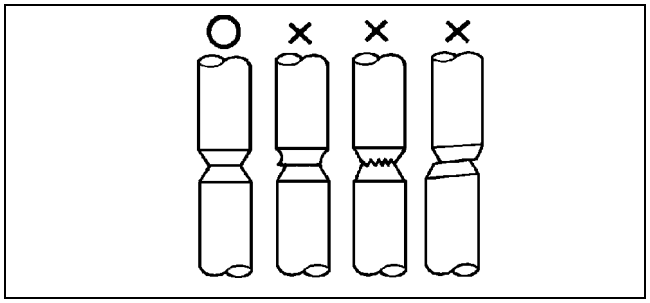
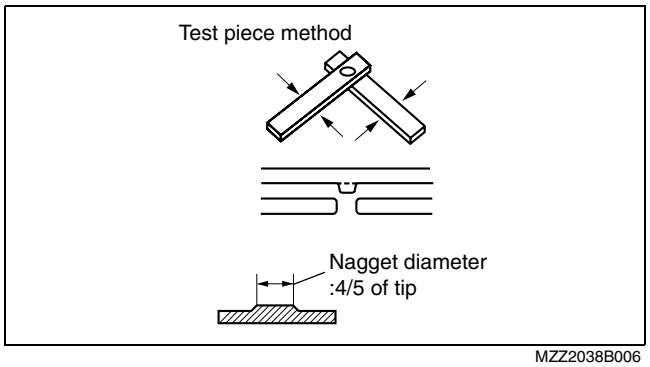
- Because the weld strength is affected by the shape of the spot welder tip, the optimum condition of the tip should always be maintained.
- Spot welds should be made at points other than the originally welded points.



MZJ2038B012

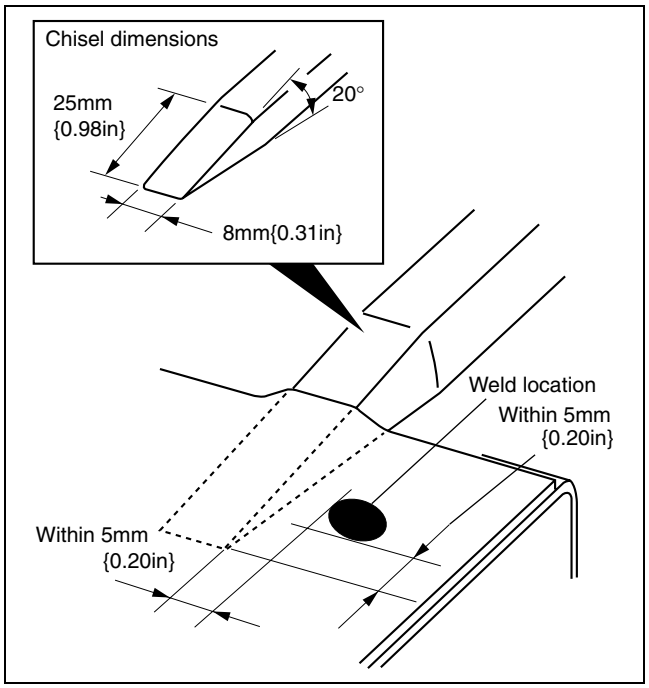
- Before spot welding, make a trial weld using the same material as the body panel to check the weld strength.



MZZ2038B006

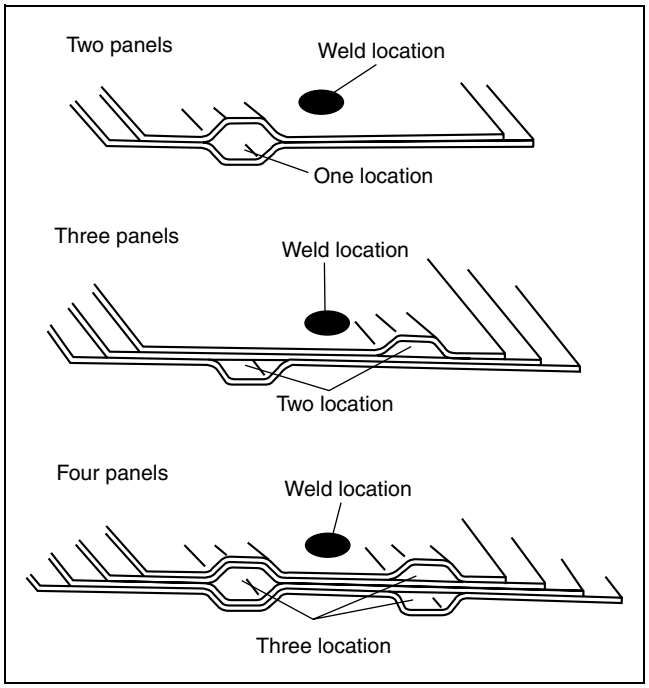
Checking Weld Strength

- Installation locations of the engine, chassis, and seat belts are designated as important safety locations for weld strength. Check weld strength by driving a chisel between the panels at every fourth or fifth weld spot, and every tenth regular weld location.



MZZ2038B007

- Drive the chisel between the panels according to the number of panels as shown below.
- To determine weld strength, drive the chisel between the panel and check whether the panels come apart. If the panels come apart, make another weld near the original weld.
- Restore the shape of the checked area.



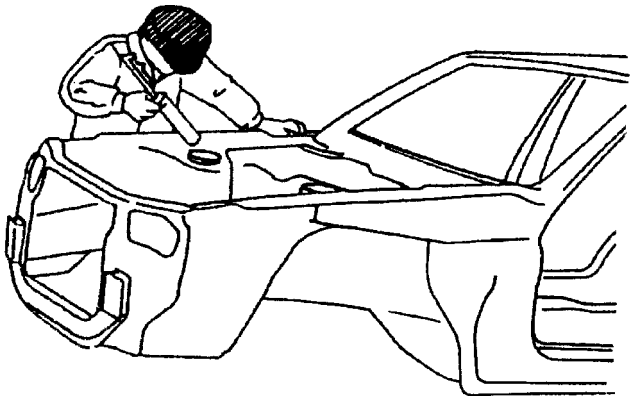
MZZ2038B008

ANTICORROSION, SOUND INSULATION, AND VIBRATION INSULATION

C3U000000000B06

Body Sealing

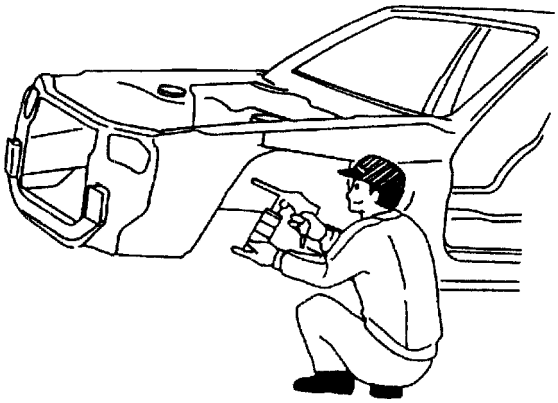
- Apply body sealer where necessary.
- For locations where application of body sealer is difficult after installation, apply it before installation.



YMU980PAR

Application of Undercoating

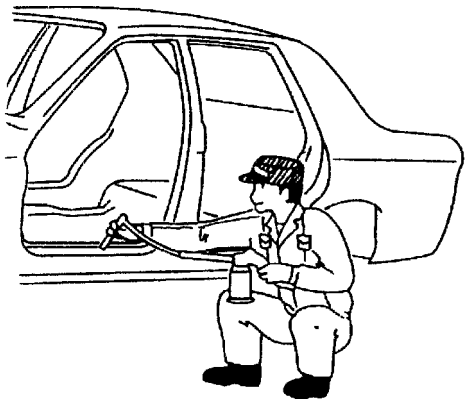
- Apply an undercoat to the required location of the body.



YMU980PAS

Application of Rust Inhibitor

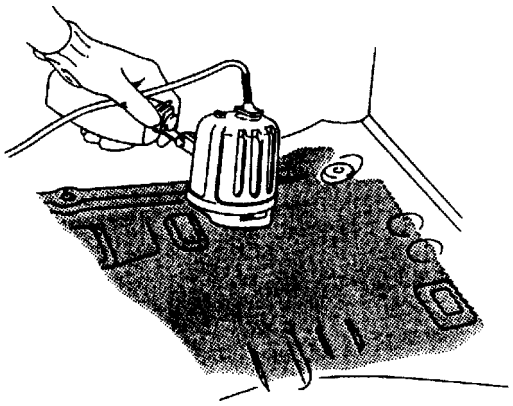
- Apply rust inhibitor (wax, oil, etc.) to the back of the welded areas.



YMU980PAT

Application of Floor Silencer

- Apply floor silencer by heating with an infrared ray lamp.



YMU980PAU

ABBREVIATION

C3U000000000B07

CM	Control module
Ctr	Center
DSC	Dynamic stability control
Fr	Front
HU	Hydraulic unit
LH	Left
M	Metallic
MC	Mica
RH	Right
Rr	Rear

BODY & ACCESSORIES

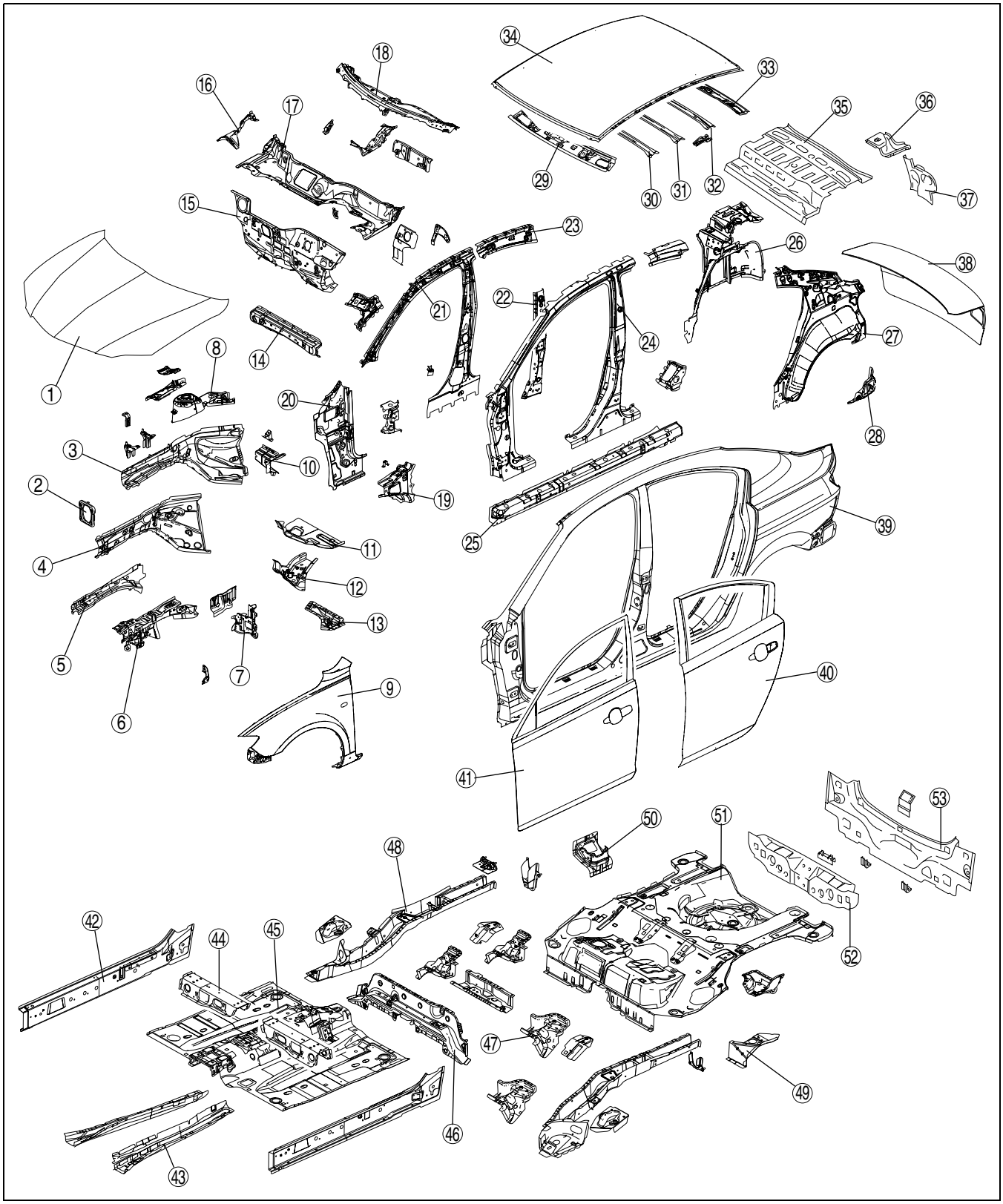
09
SECTION

09–80A BODY STRUCTURE [CONSTRUCTION]

BODY COMPONENTS CONSTRUCTION

C3U098007000B01

4SD



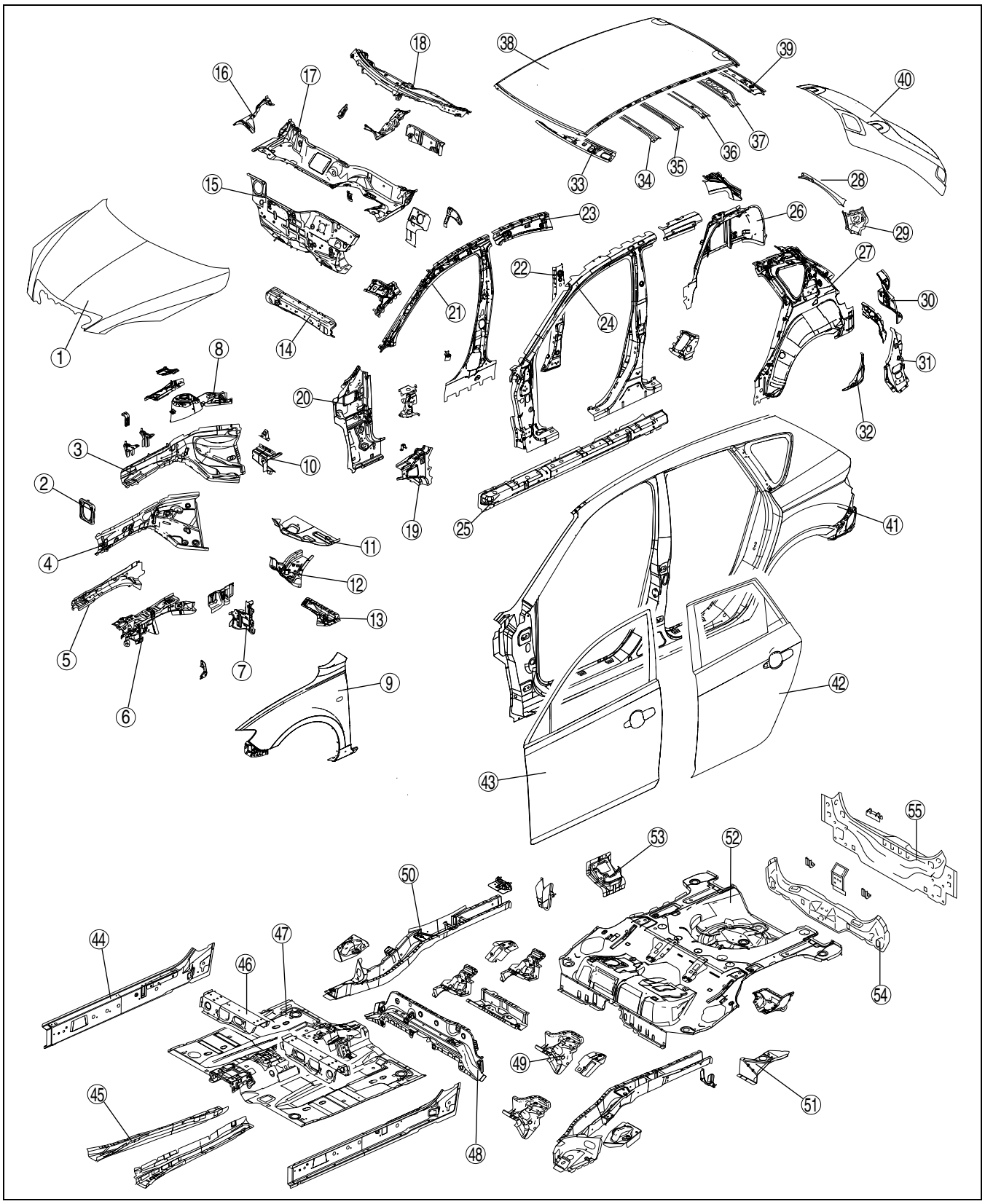
B3U0980B041

x:Applied
-:Not applied

No.	Part Name			High- tension steel	Rust proof steel	Thickness (mm) {in}
1	Hood			-	x	0.70 {0.028}
2	Front bumper bracket			x	x	2.90 {0.114}
3	Front side frame (inner)			x	x	1.60 {0.063}
4	Front side frame (outer)			x	x	1.60 {0.063}
5	Apron reinforcement (lower)			-	x	0.70 {0.028}
6	Apron reinforcement (upper)			-	x	1.00 {0.039}
7	Shroud side panel			x	x	1.00 {0.039}
8	Suspension housing			-	x	2.60 {0.102}
9	Front fender panel			x	x	0.65 {0.026}
10	Side member deck			-	x	1.80 {0.071}
11	Front frame rear reinforcement			x	x	0.80 {0.031}
12	Front frame (rear)			x	x	1.80 {0.071}
13	Torque box			-	x	1.60 {0.063}
14	Dash lower member			x	x	1.40 {0.055}
15	Dash lower panel				x	0.80 {0.031}
16	Wiper bracket			-	x	1.40 {0.055}
17	Dash upper panel			-	x	0.85 {0.033}
18	Cowl panel			-	x	0.80 {0.031}
19	Cowl side reinforcement			-	x	0.70 {0.028}
20	Hinge pillar (inner)			x	x	1.60 {0.063}
21	Front pillar (inner)	LH		x	-	1.40 {0.055}
		RH		x	-	1.60 {0.063}
	Center pillar (inner)	Upper	LH	x	-	1.60 {0.063}
			RH	x	-	1.80 {0.071}
		Center		x	-	1.20 {0.047}
		Lower		x	-	1.00 {0.039}
22	Center pillar reinforcement (inner)			x	-	1.80 {0.071}
23	Roof rail (inner, rear)			x	-	1.00 {0.039}
24	Front pillar reinforcement	Upper		x	-	1.80 {0.071}
		Lower		x	-	1.80 {0.071}
	Center pillar reinforcement	Upper		x	-	1.40 {0.055}
		Lower		x	-	1.20 {0.047}
25	Side sill reinforcement			x	-	1.40 {0.055}
26	Wheel house (inner)			-	x	0.70 {0.028}
27	Rear pillar (inner)			-	x	0.65 {0.026}
28	Rear fender lower panel			-	x	0.70 {0.028}
29	Front header			-	-	0.65 {0.026}
30	Roof reinforcement (front)			-	-	0.55 {0.021}
31	Roof reinforcement center			-	-	1.00 {0.039}
32	Roof reinforcement (rear)			-	-	1.00 {0.039}
33	Rear header			-	-	0.70 {0.028}
34	Roof panel			-	-	0.70 {0.028}
35	Package tray			-	-	0.60 {0.024}
36	Rear fender rain rail			-	x	0.70 {0.028}
37	Corner plate			-	x	0.70 {0.028}
38	Trunk lid panel			x	x	0.70 {0.028}
39	Side panel (outer)			-	x	0.70 {0.028}
40	Rear door			-	x	0.65 {0.026}
41	Front door			-	x	0.70 {0.028}
42	Side sill (inner)			x	x	1.40 {0.055}
43	Front B frame			x	x	0.90 {0.035}

No.	Part Name		High- tension steel	Rust proof steel	Thickness (mm) {in}
44	Crossmember No.2		x	-	1.20 {0.047}
45	Front floor pan		-	x	0.70 {0.028}
46	Crossmember No.3		x	x	1.60 {0.063}
47	Crossmember No.4 gusset		-	x	1.40 {0.055}
48	Rear side frame	Front	x	x	2.00 {0.079}
		Center	x	x	2.60 {0.102}
		Rear	x	x	1.80 {0.071}
49	Crossmember No.3 (front)		-	x	1.60 {0.063}
50	Suspension housing		-	x	0.75 {0.030}
51	Rear floor pan		-	x	2.00 {0.079}
52	Rear end member		-	-	0.60 {0.024}
53	Rear end panel		-	x	0.60 {0.024}

5HB



B3U0980B043

x:Applied
-:Not applied

No.	Part Name			High- tension steel	Rust proof steel	Thickness (mm) {in}
1	Hood			x	x	0.70 {0.028}
2	Front bumper bracket			x	x	2.90 {0.114}
3	Front side frame (inner)			x	x	1.60 {0.063}
4	Front side frame (outer)			x	x	1.60 {0.063}
5	Apron reinforcement (lower)			-	x	0.70 {0.028}
6	Apron reinforcement (upper)			-	x	1.00 {0.039}
7	Shroud side panel			x	x	1.00 {0.039}
8	Suspension housing			-	x	2.60 {0.102}
9	Front fender panel			x	x	0.65 {0.026}
10	Side member deck			-	x	1.80 {0.071}
11	Front frame rear reinforcement			x	x	0.80 {0.031}
12	Front frame (rear)			x	x	1.80 {0.071}
13	Torque box			-	x	1.60 {0.063}
14	Dash lower member			x	x	1.40 {0.055}
15	Dash lower panel				x	0.80 {0.031}
16	Wiper bracket			-	x	1.40 {0.055}
17	Dash upper panel			-	x	0.85 {0.033}
18	Cowl panel			-	x	0.80 {0.031}
19	Cowl side reinforcement			-	x	0.70 {0.028}
20	Hinge pillar (inner)			x	x	1.60 {0.063}
21	Front pillar (inner)	LH		x	-	1.40 {0.055}
		RH		x	-	1.60 {0.063}
	Center pillar (inner)	Upper	LH	x	-	1.60 {0.063}
			RH	x	-	1.80 {0.071}
		Center		x	-	1.20 {0.047}
		Lower		x	-	1.00 {0.039}
22	Center pillar reinforcement (inner)			x	-	1.80 {0.071}
23	Roof rail (inner, rear)			x	-	1.00 {0.039}
24	Front pillar reinforcement	Upper		x	-	1.80 {0.071}
		Lower		x	-	1.80 {0.071}
	Center pillar reinforcement	Upper		x	-	1.40 {0.055}
		Lower		x	-	1.20 {0.047}
25	Side sill reinforcement			x	-	1.40 {0.055}
26	Wheel house (inner)			-	x	0.70 {0.028}
27	Rear pillar (inner)			-	x	0.65 {0.026}
28	Rear pillar (outer)			-	x	0.70 {0.028}
29	Corner plate			-	x	0.70 {0.028}
30	Rear side panel			-	-	0.70 {0.028}
31	Rear pillar reinforcement			-	-	0.70 {0.028}
32	Rear fender lower panel			-	x	0.70 {0.028}
33	Front header			-	-	0.65 {0.026}
34	Roof reinforcement (front)			-	-	0.55 {0.021}
35	Roof reinforcement center (front)			-	-	1.00 {0.039}
36	Roof reinforcement center (rear)			-	-	0.75 {0.030}
37	Roof reinforcement (rear)			-	-	0.55 {0.021}
38	Rear header			-	-	0.75 {0.030}
39	Roof panel			-	-	0.75 {0.030}
40	Liftgate panel			-	x	0.70 {0.028}
41	Side panel (outer)			-	x	0.70 {0.028}
42	Rear door			-	x	0.65 {0.026}
43	Front door			x	x	0.70 {0.028}

No.	Part Name		High- tension steel	Rust proof steel	Thickness (mm) {in}
44	Side sill (inner)		x	x	1.40 {0.055}
45	Front B frame		x	x	0.90 {0.035}
46	Crossmember No.2		x	-	1.20 {0.047}
47	Front floor pan		-	x	0.70 {0.028}
48	Crossmember No.3		x	x	1.60 {0.063}
49	Crossmember No.4 gusset		-	x	1.40 {0.055}
50	Rear side frame	Front	x	x	2.00 {0.079}
		Center	x	x	2.60 {0.102}
		Rear	x	x	1.80 {0.071}
51	Crossmember No.3 (front)		-	x	1.60 {0.063}
52	Rear floor pan		-	x	0.75 {0.030}
53	Suspension housing		-	x	2.00 {0.079}
54	Rear end member		-	-	1.20 {0.047}
55	Rear end panel		-	x	0.60 {0.024}

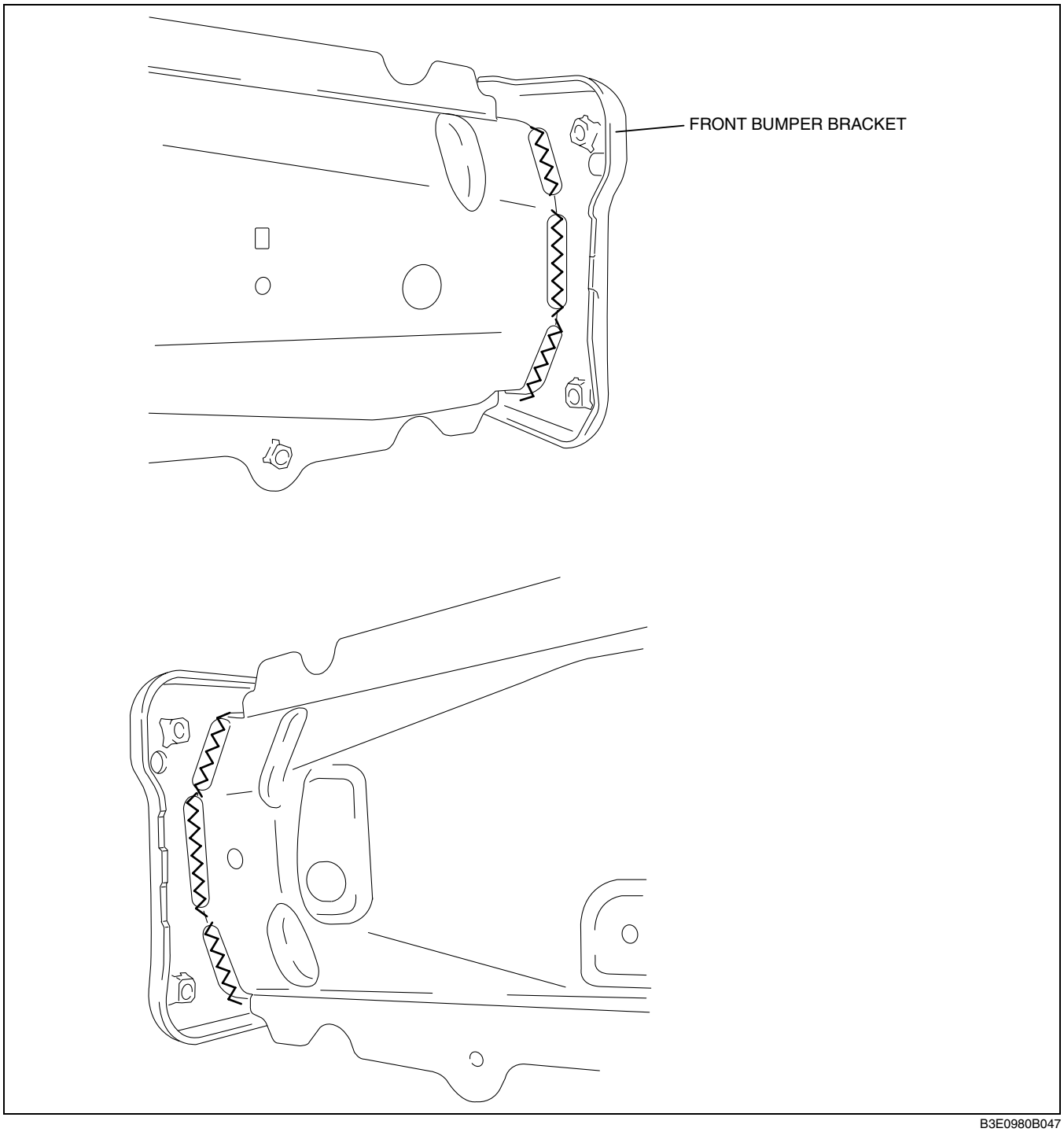
09–80B BODY STRUCTURE [PANEL REPLACEMENT]

FRONT BUMPER BRACKET REMOVAL

C3U098053896B01

1. Remove the front bumper bracket.

Caution
- **Only the procedure for the left side is described. The shape for the right side is different.**

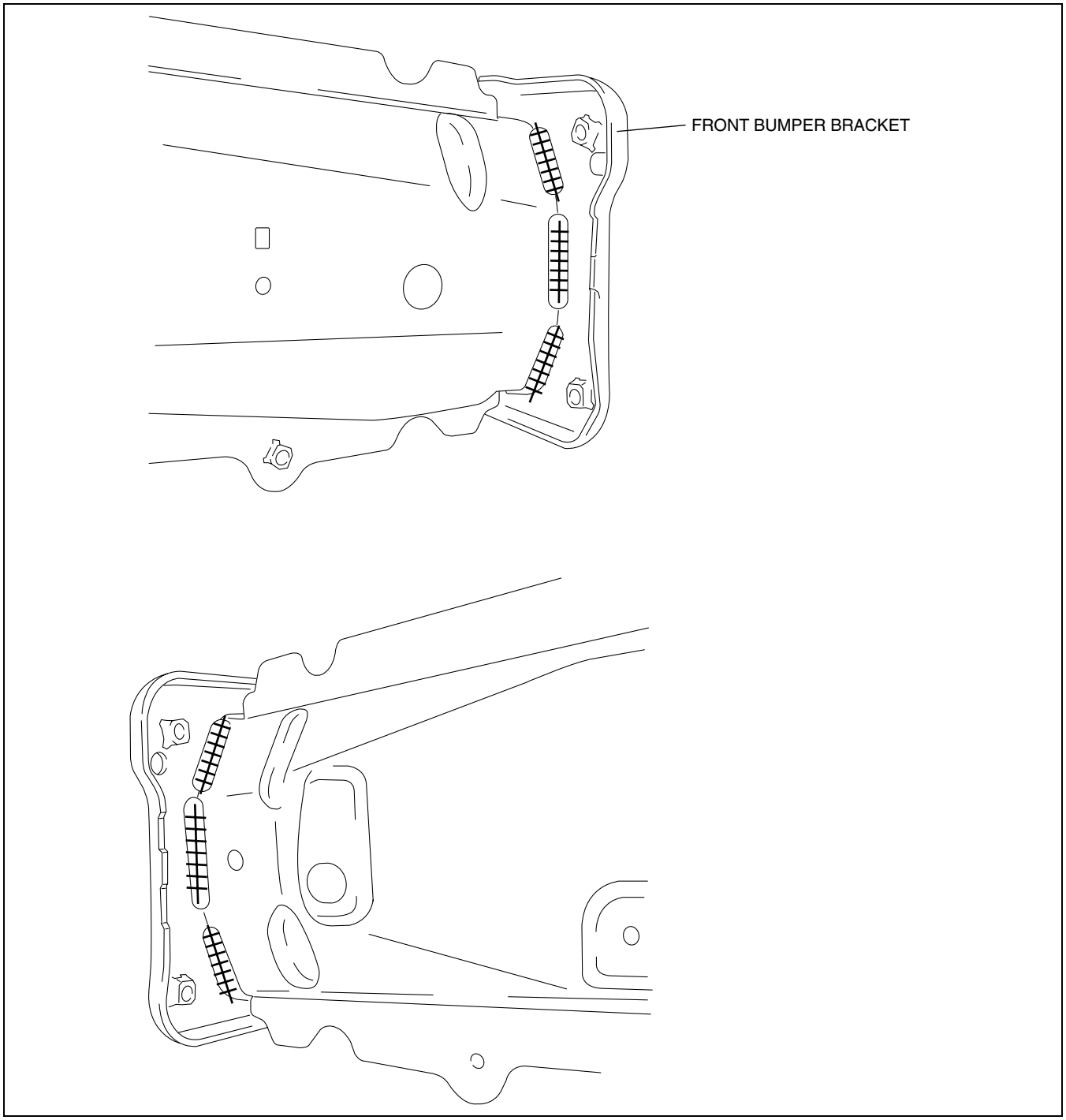


B3E0980B047

FRONT BUMPER BRACKET INSTALLATION

C3U098053896B02

1. When installing new parts, measure and adjust the body as necessary to conform with standard dimensions.
2. After temporarily installing new parts, make sure the related parts fit properly.

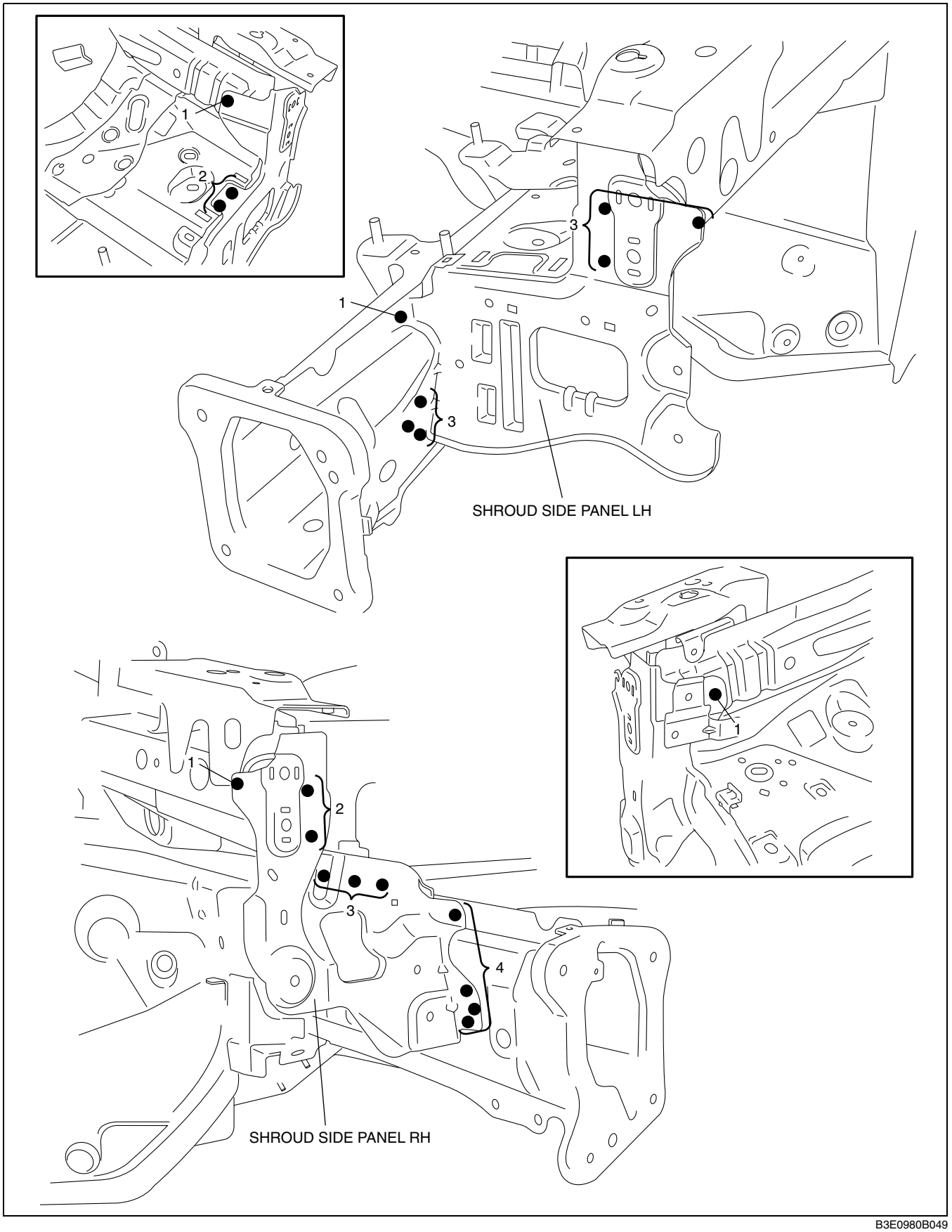


B3E0980B048

SHROUD SIDE PANEL REMOVAL

C3U098053140B01

1. Remove the shroud side panel.

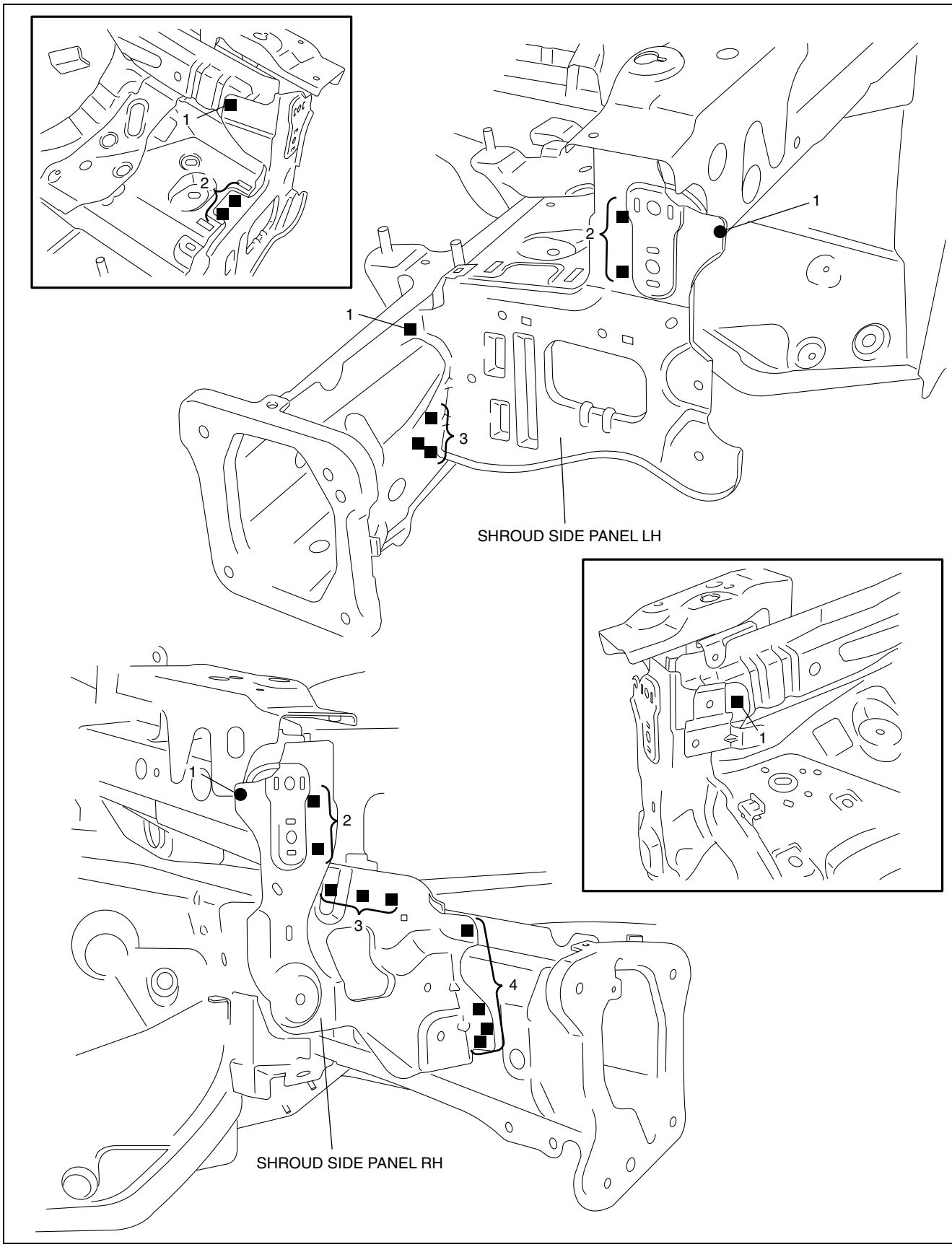


B3E0980B049

SHROUD SIDE PANEL INSTALLATION

C3U098053140B02

1. When installing new parts, measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.
3. After temporarily installing new parts, make sure the related parts fit properly.



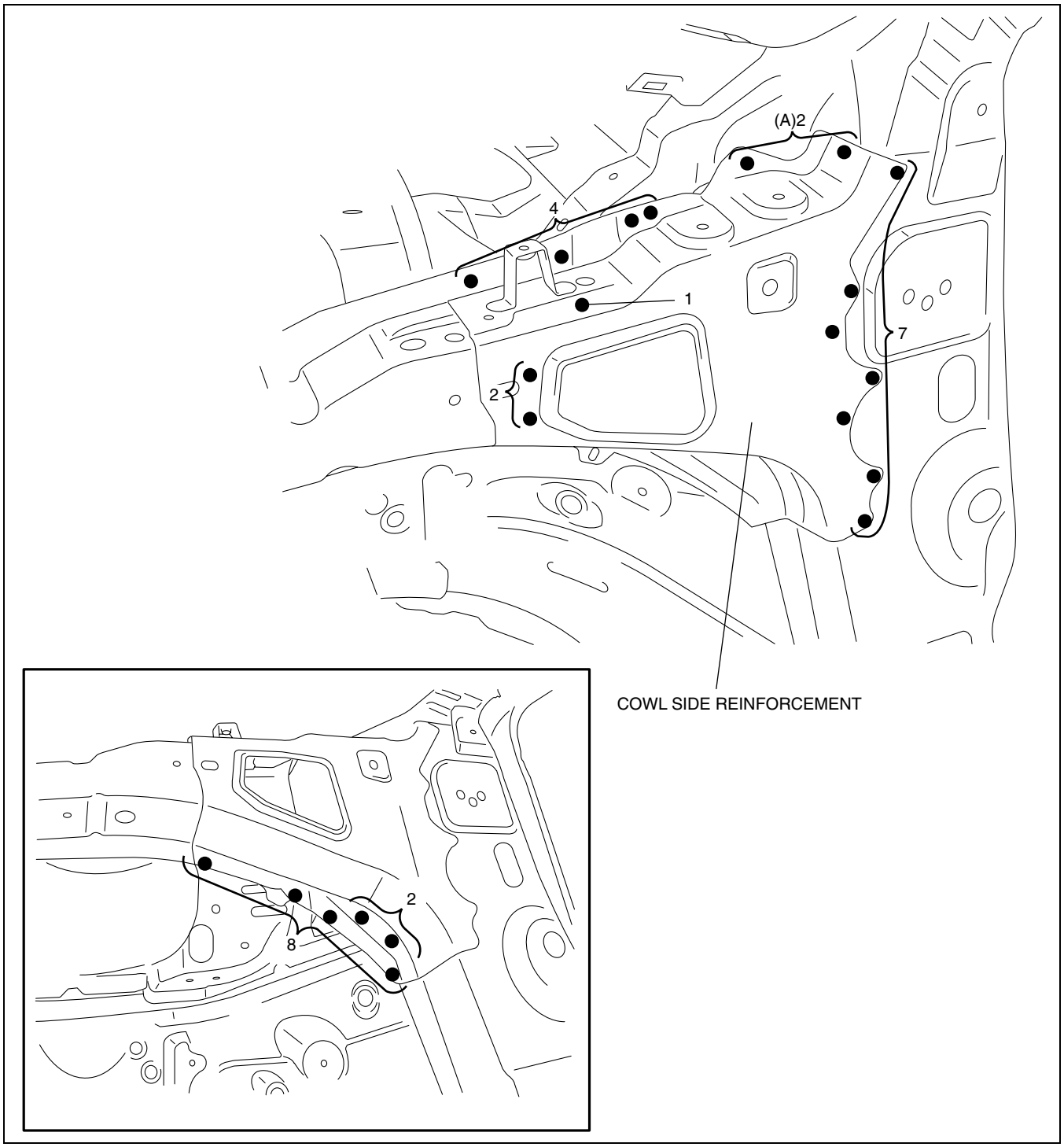
B3E0980B050

COWL SIDE REINFORCEMENT REMOVAL

C3U098053290B01

1. Remove the cowl side reinforcement.

Caution
- **Be careful not to damage the windshield when drilling the 2 locations indicated by (A).**

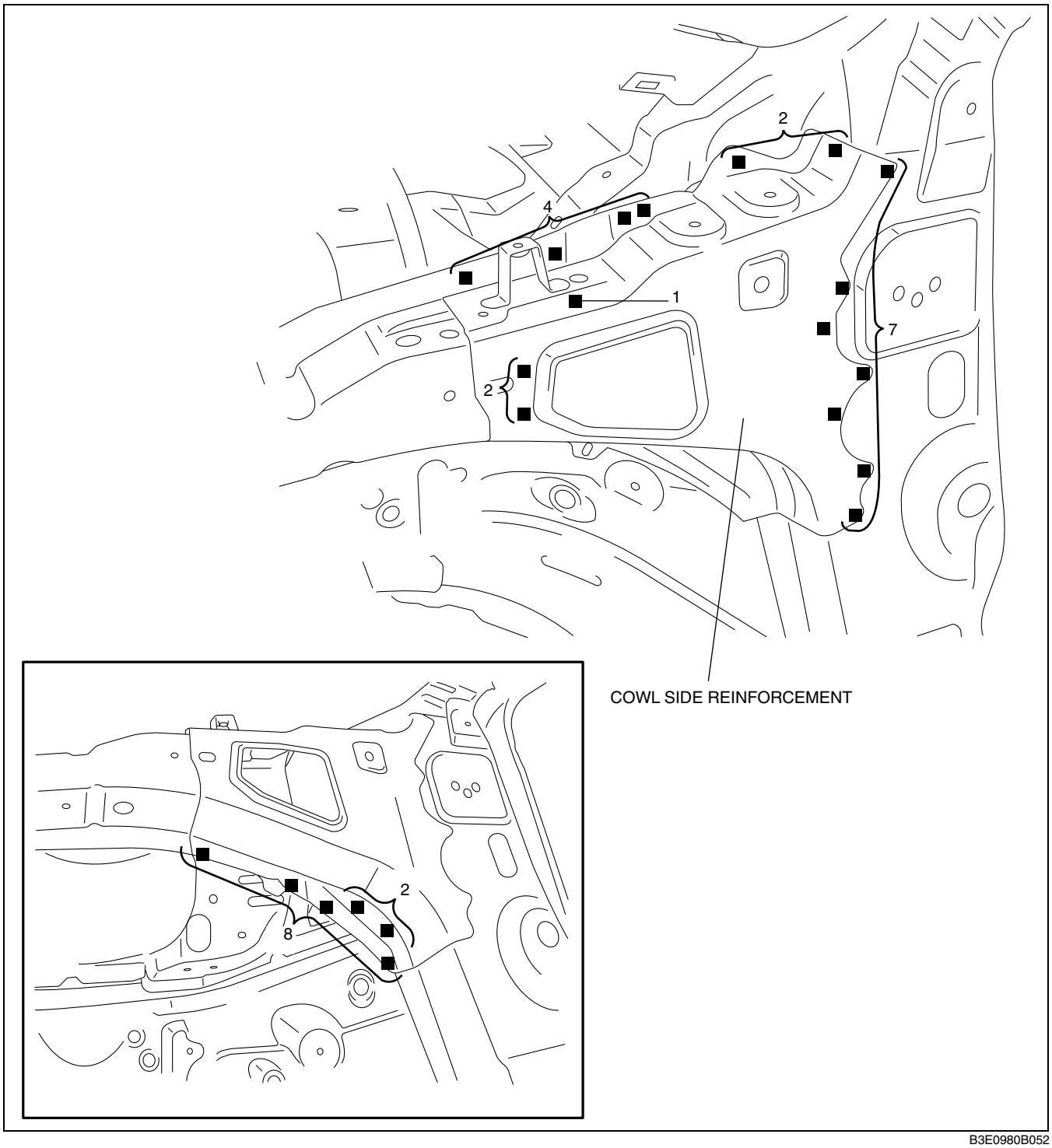


B3E0980B051

COWL SIDE REINFORCEMENT INSTALLATION

C3U098053290B02

1. When installing new parts, measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.
3. After temporarily installing new parts, make sure the related parts fit properly.

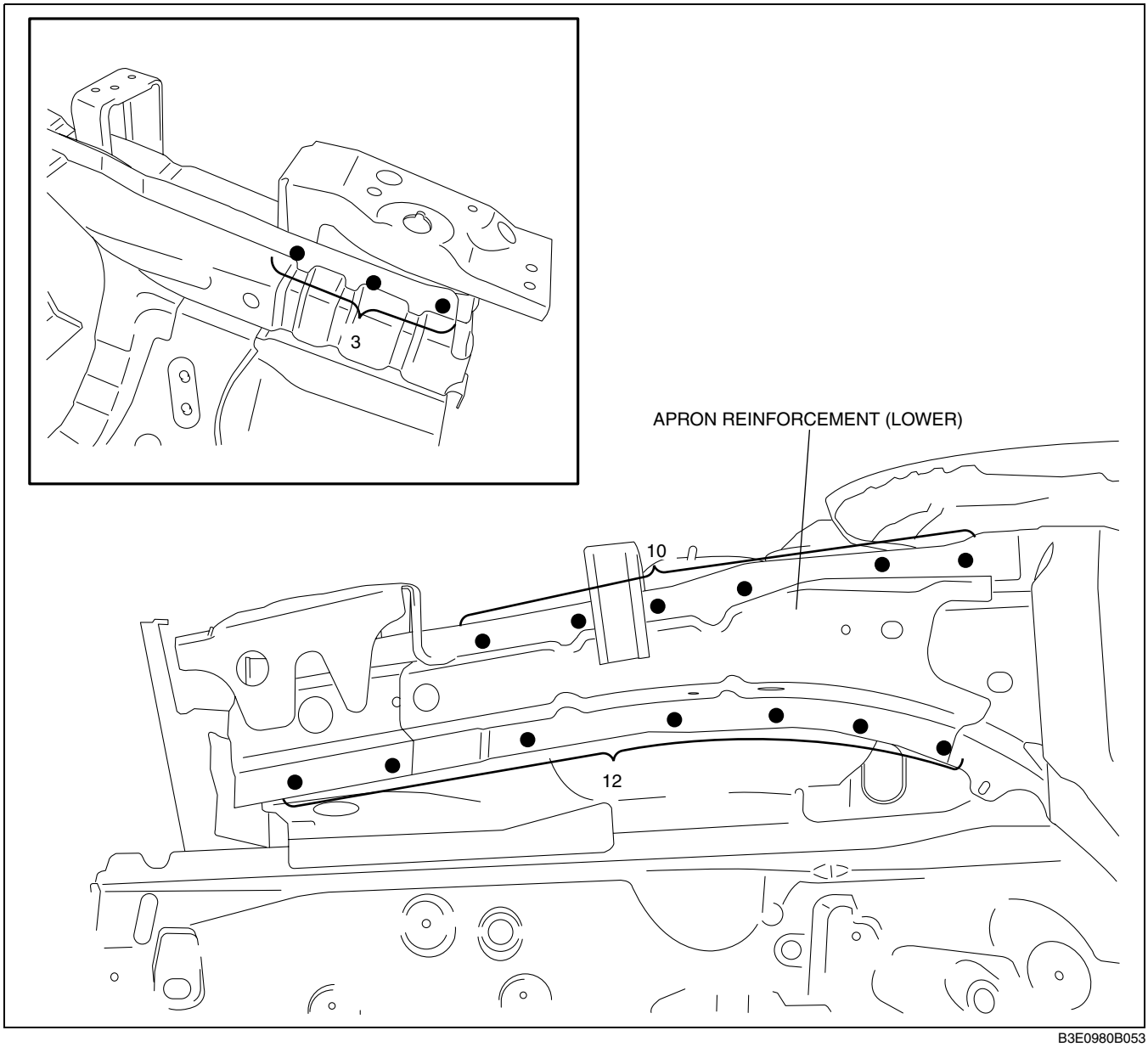


B3E0980B052

APRON REINFORCEMENT (LOWER) REMOVAL

C3U098053260B01

1. Remove the apron reinforcement (lower).

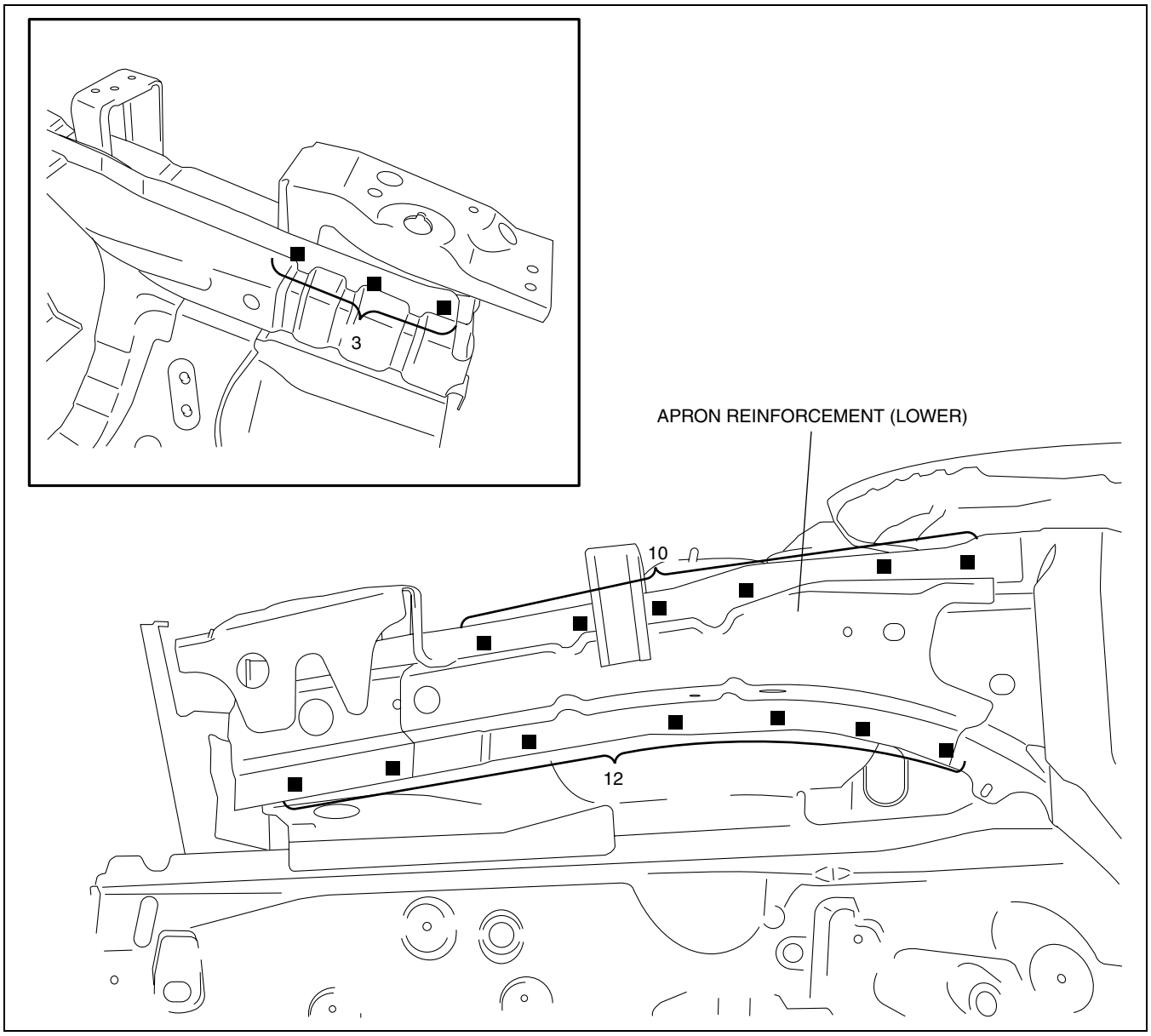


B3E0980B053

APRON REINFORCEMENT (LOWER) INSTALLATION

C3U098053260B02

1. When installing new parts, measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.
3. After temporarily installing new parts, make sure the related parts fit properly.

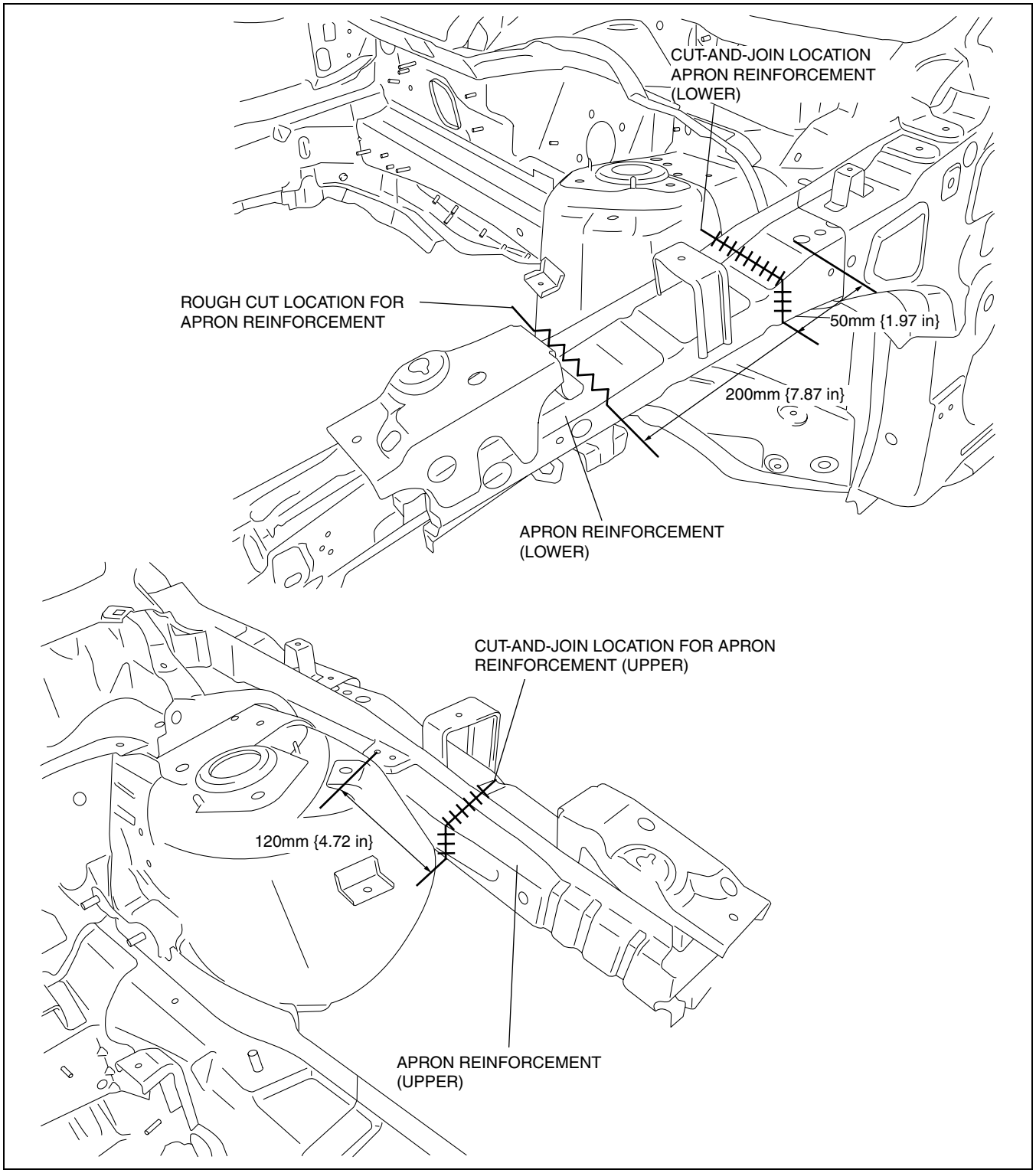


B3E0980B054

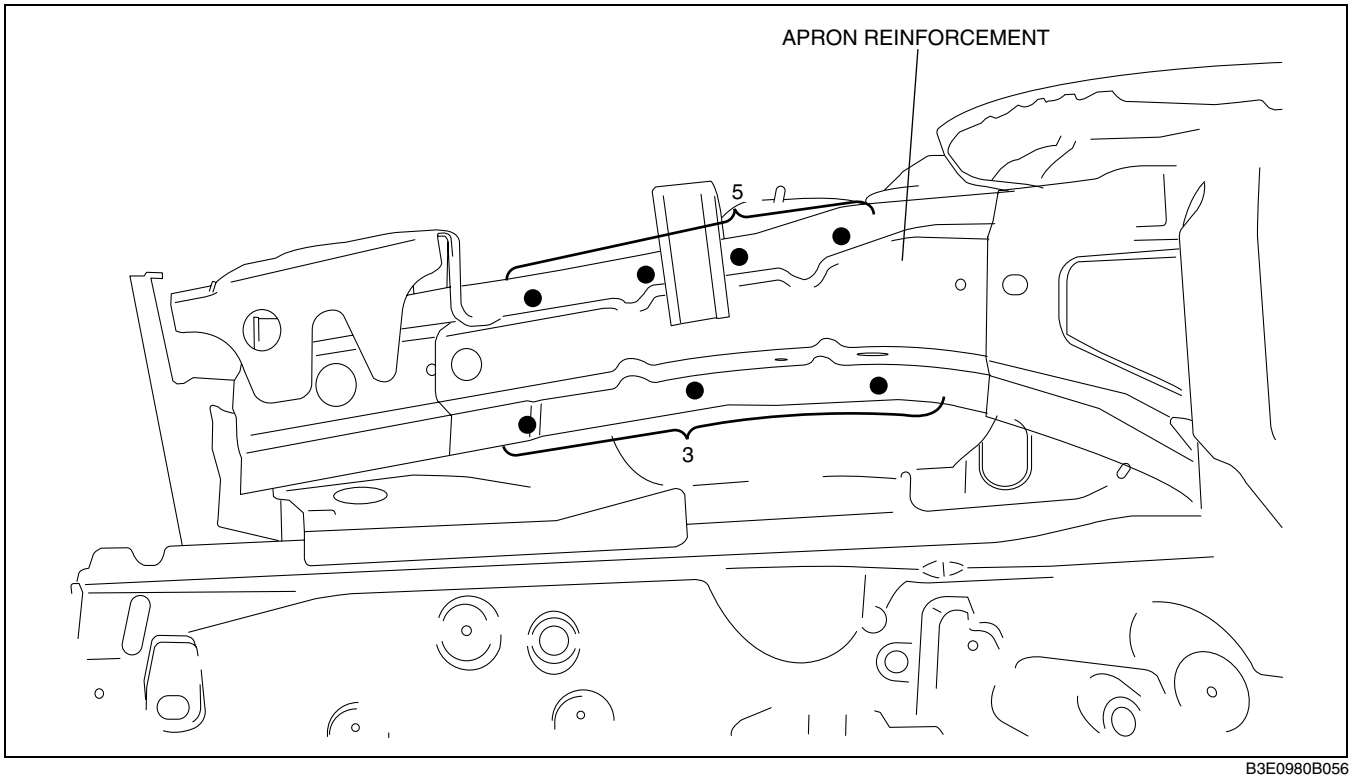
APRON REINFORCEMENT (PARTIAL CUTTING) REMOVAL

C3U098053260B03

1. Rough cut at the locations shown in the figure to remove damaged parts.
2. Remove the apron reinforcement.



B3E0980B055

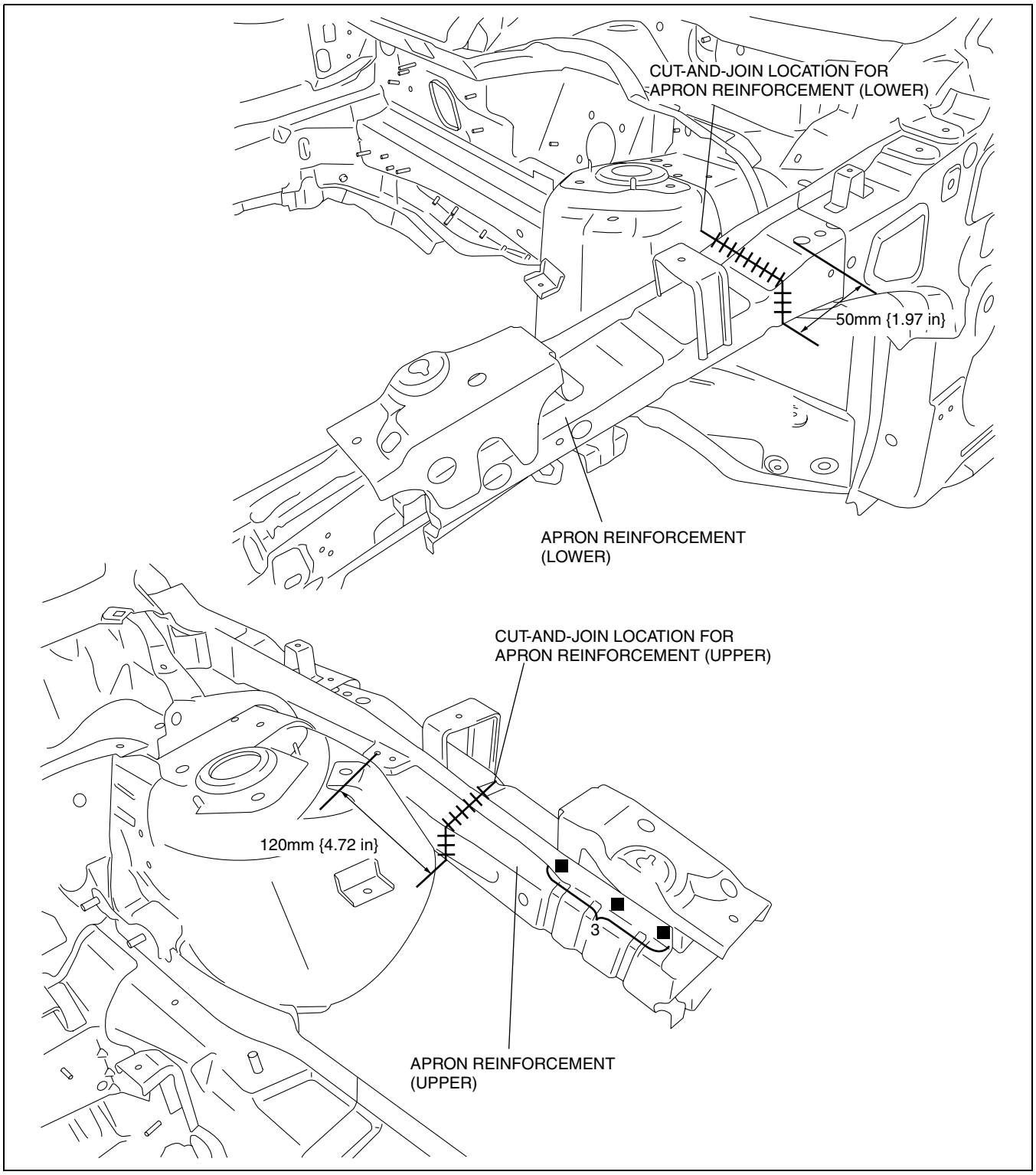


B3E0980B056

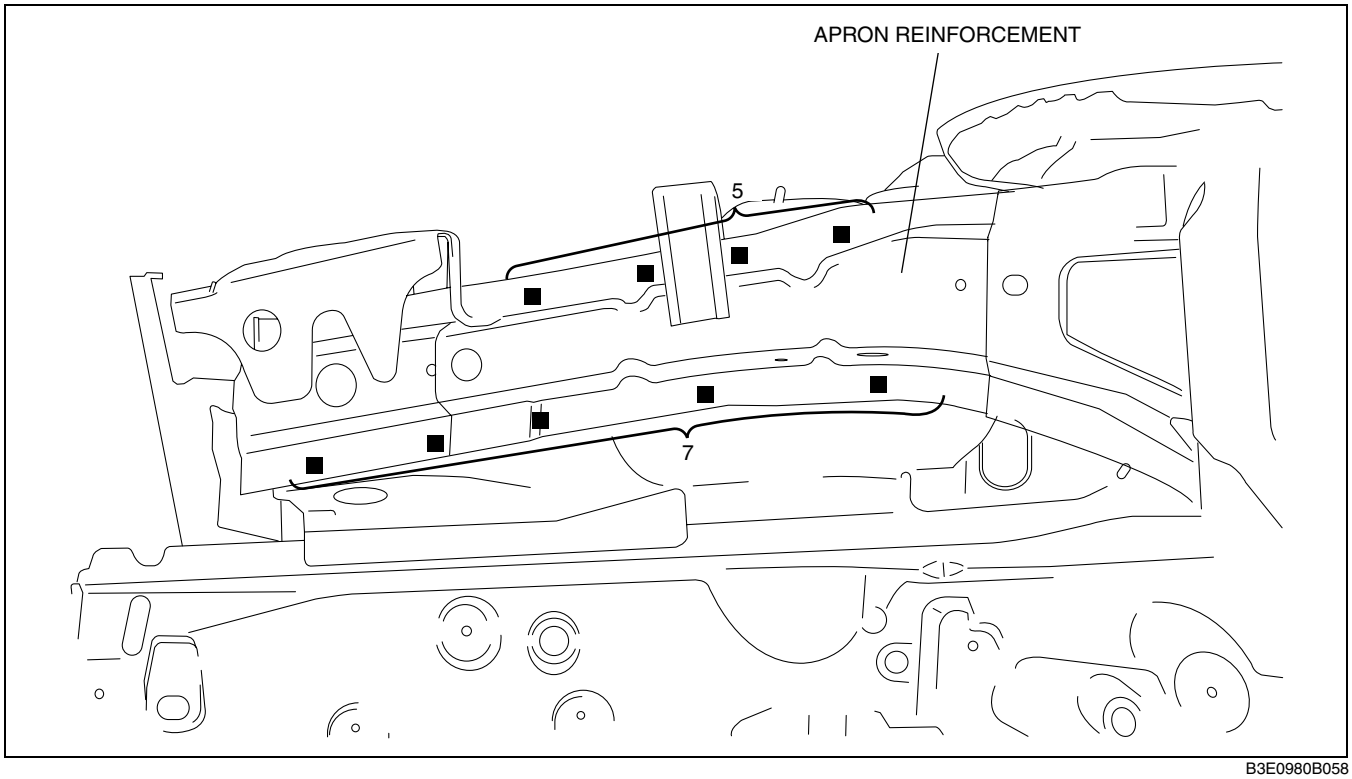
APRON REINFORCEMENT (PARTIAL CUTTING) INSTALLATION

C3U098053260B04

1. When installing new parts, measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.
3. After temporarily installing new parts, make sure the related parts fit properly.



B3E0980B057

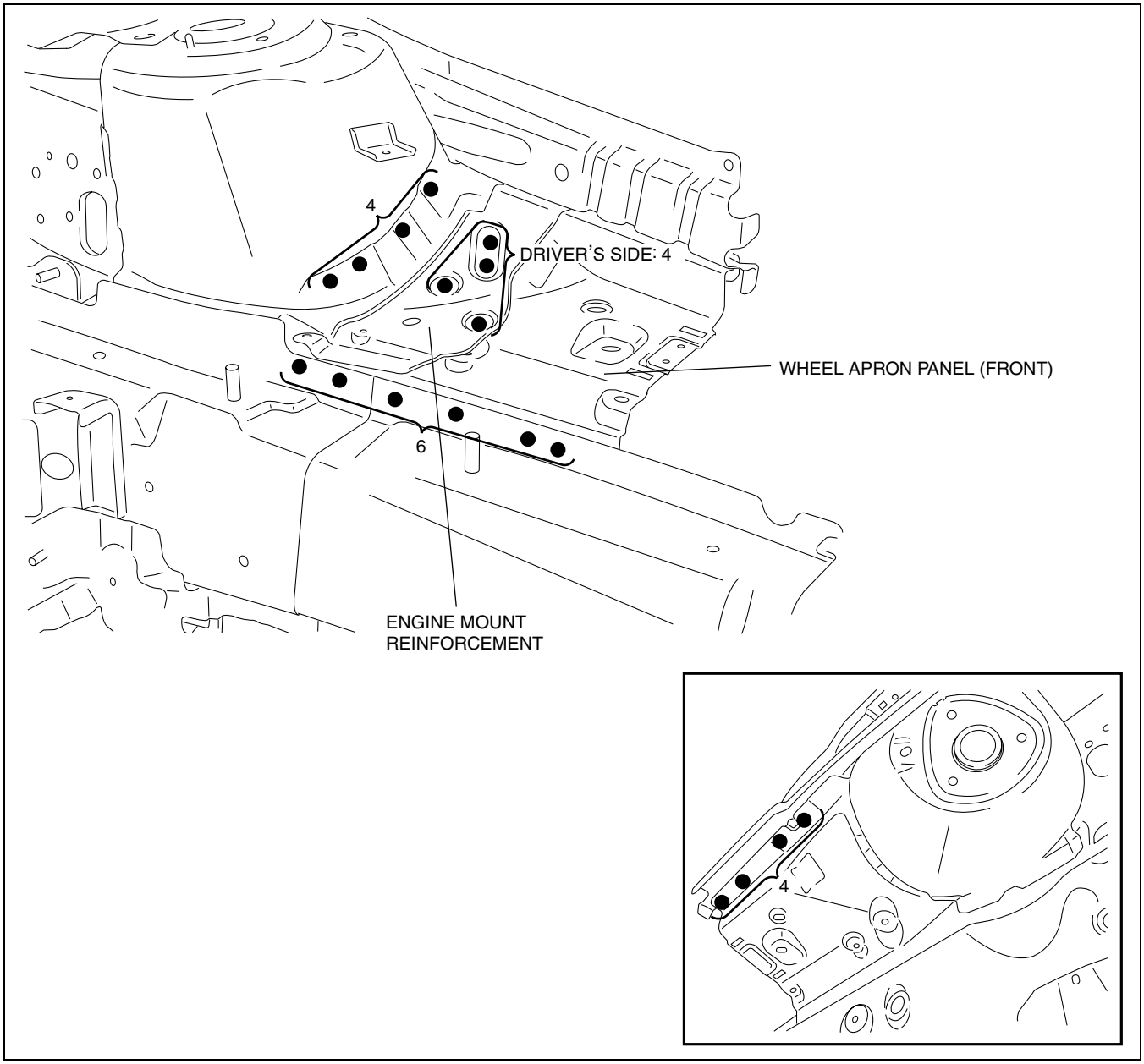


B3E0980B058

WHEEL APRON PANEL (FRONT) REMOVAL

C3U098053210B01

1. Remove the wheel apron panel (front).

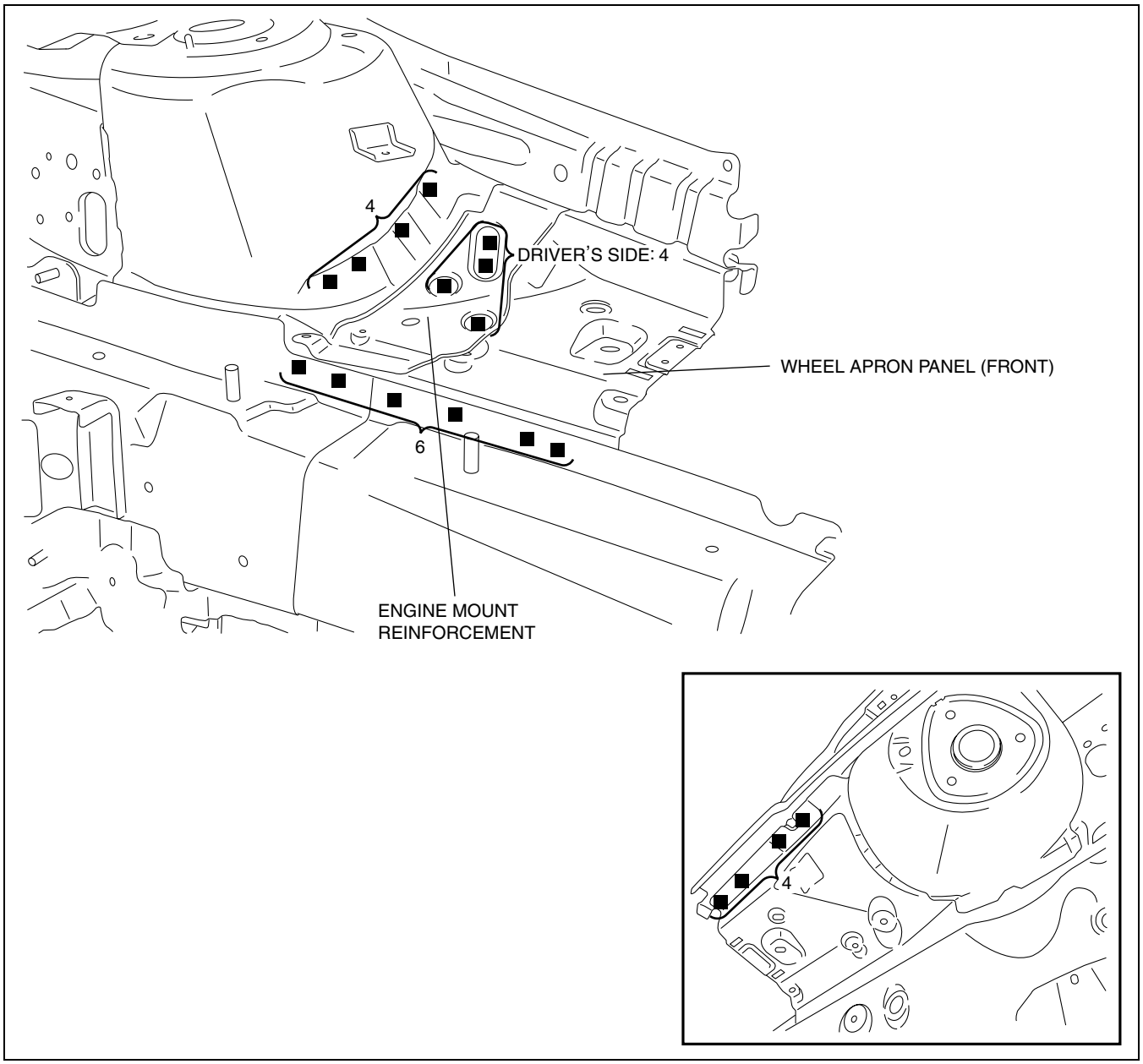


B3E0980B059

WHEEL APRON PANEL (FRONT) INSTALLATION

C3U098053210B02

1. When installing new parts, measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.
3. After temporarily installing new parts, make sure the related parts fit properly.

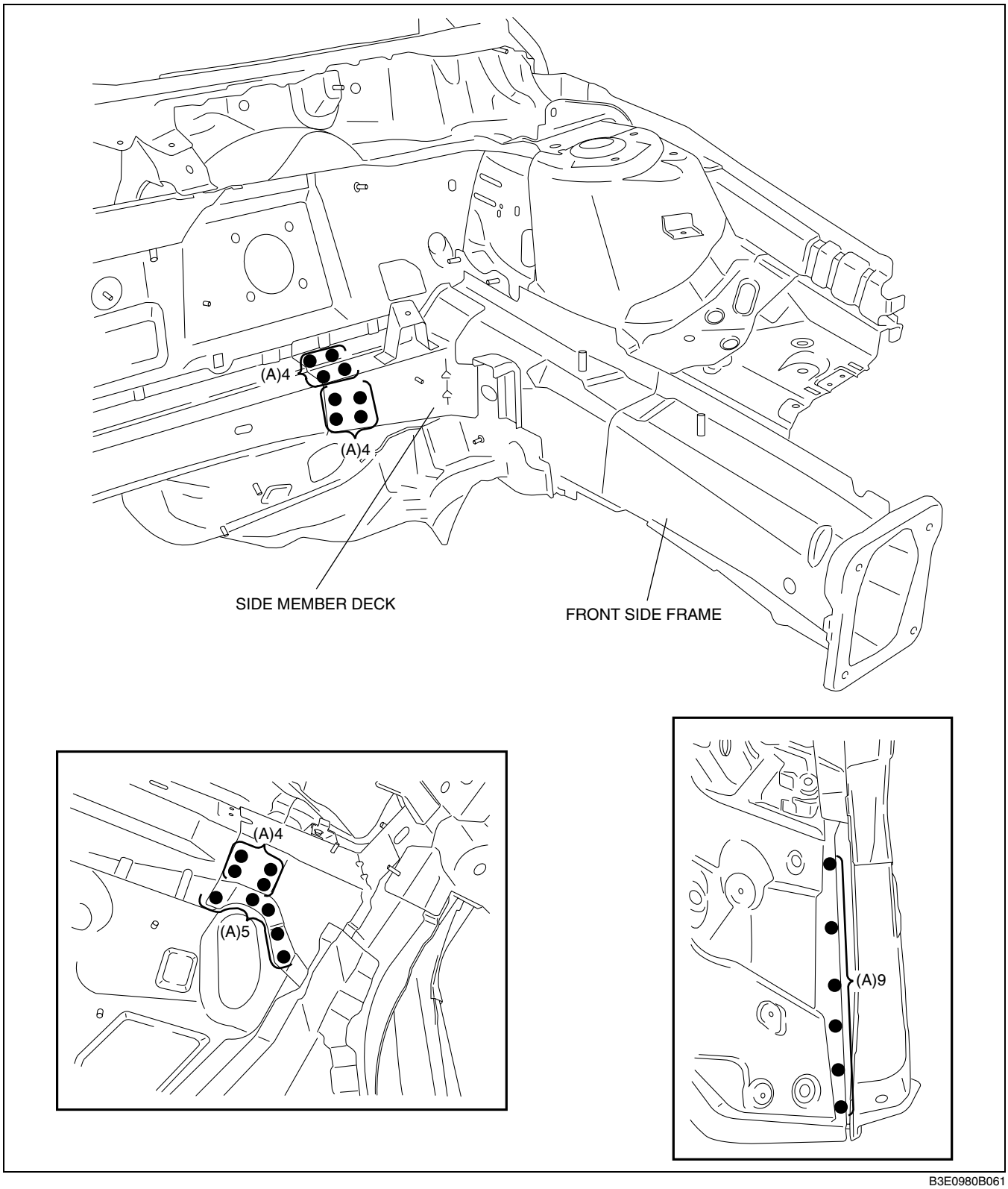


B3E0980B060

FRONT SIDE FRAME COMPONENT REMOVAL

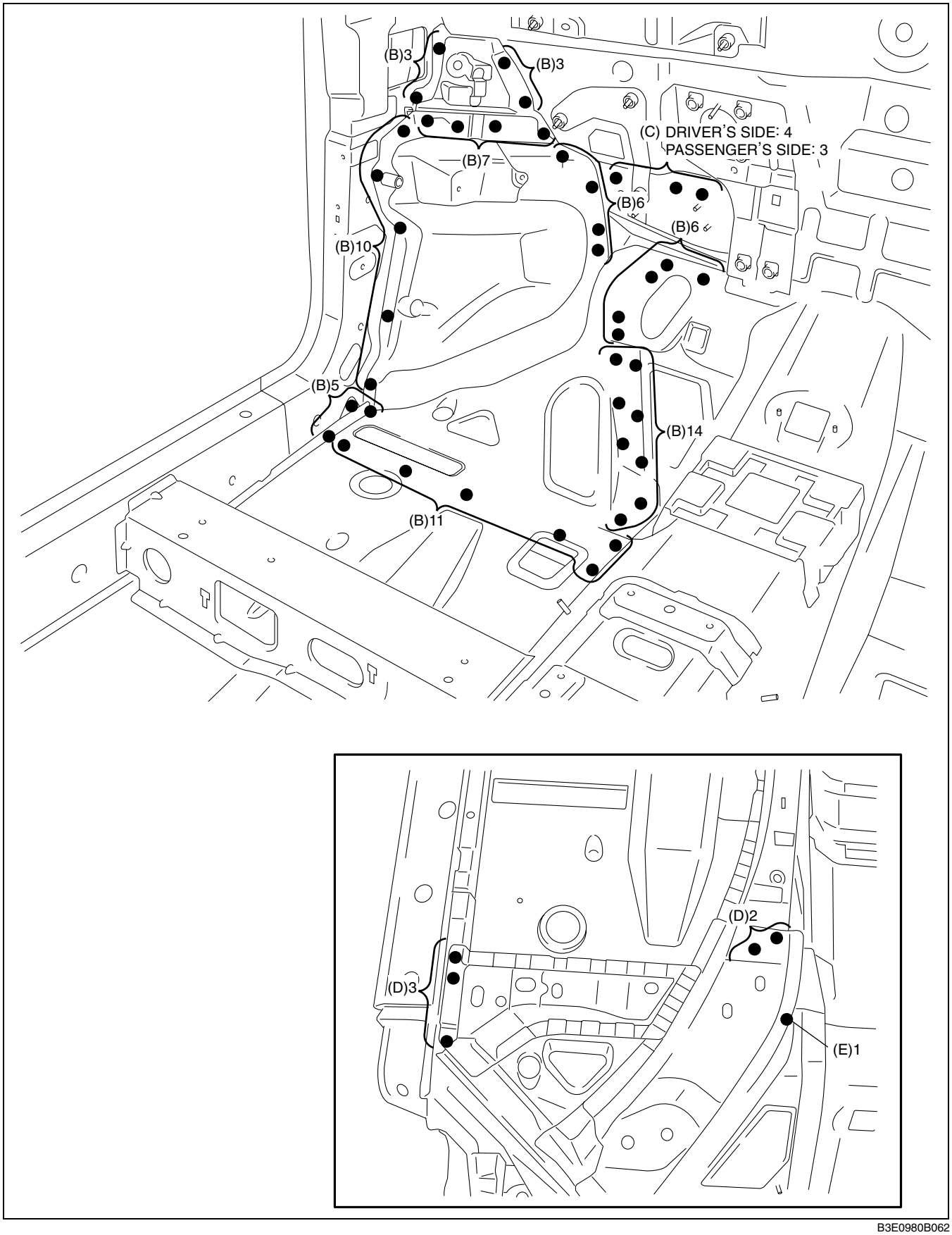
C3U098053300B01

1. Drill the 26 locations indicated by (A).



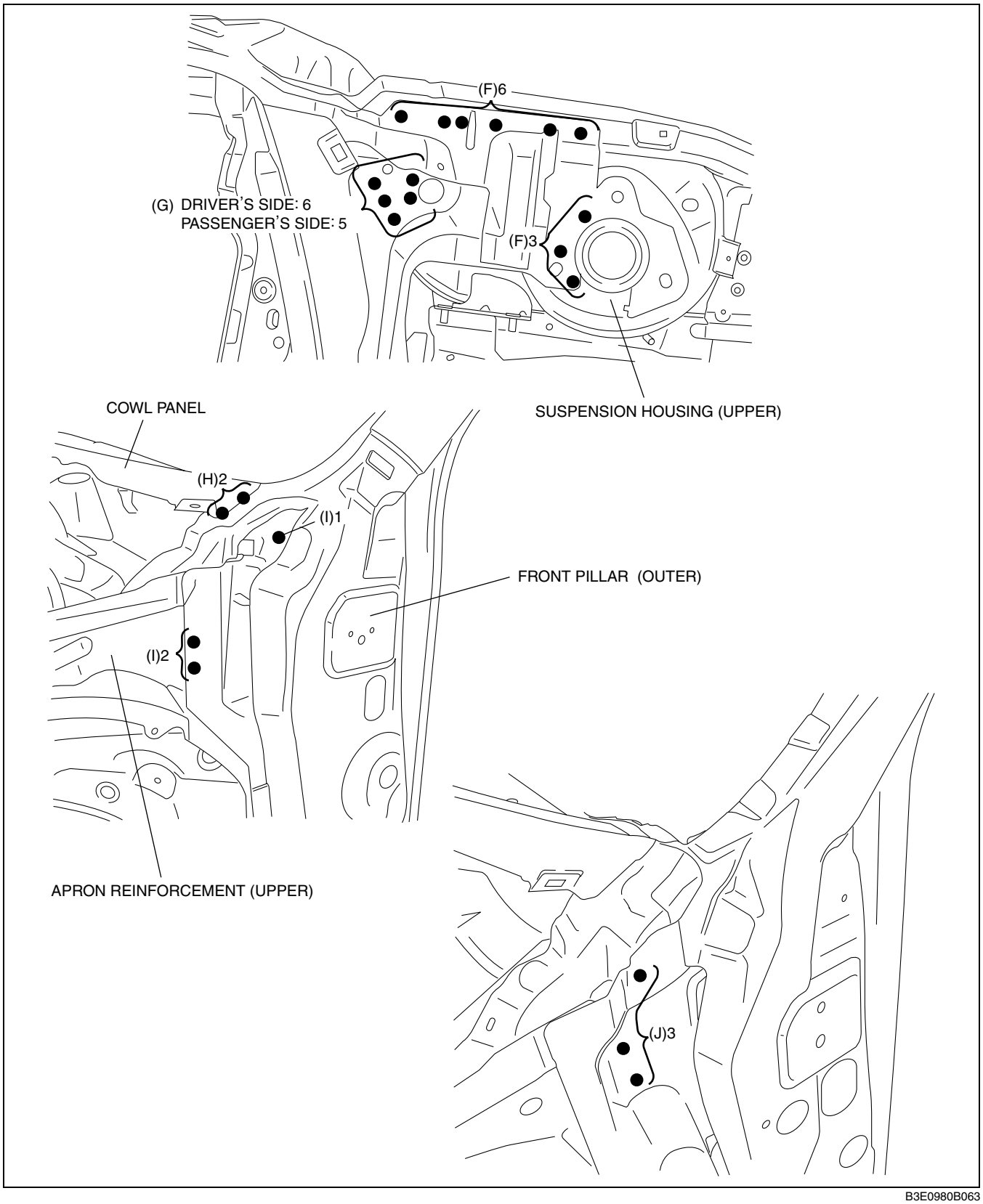
B3E0980B061

2. Drill the 65 locations indicated by (B), 4 locations on the driver's side indicated by (C), and 3 locations on the passenger's side.
3. Drill the 5 locations indicated by (D) from the bottom.
4. Drill the 1 location indicated by (E) from the bottom, as it cannot be seen from the interior.



B3E0980B062

5. Drill the 9 locations indicated by (F), 6 locations on the driver's side indicated by (G), 5 locations on the passenger's side.
6. When the front side frame component is being removed, the hinge pillar (inner) may interfere with the apron reinforcement (upper) and make removal difficult, drill the 2 locations indicated by (H), 3 locations indicated by (I), and then open the front pillar (outer) outward.
7. Drill the 3 locations indicated by (J), and remove the front side frame component.

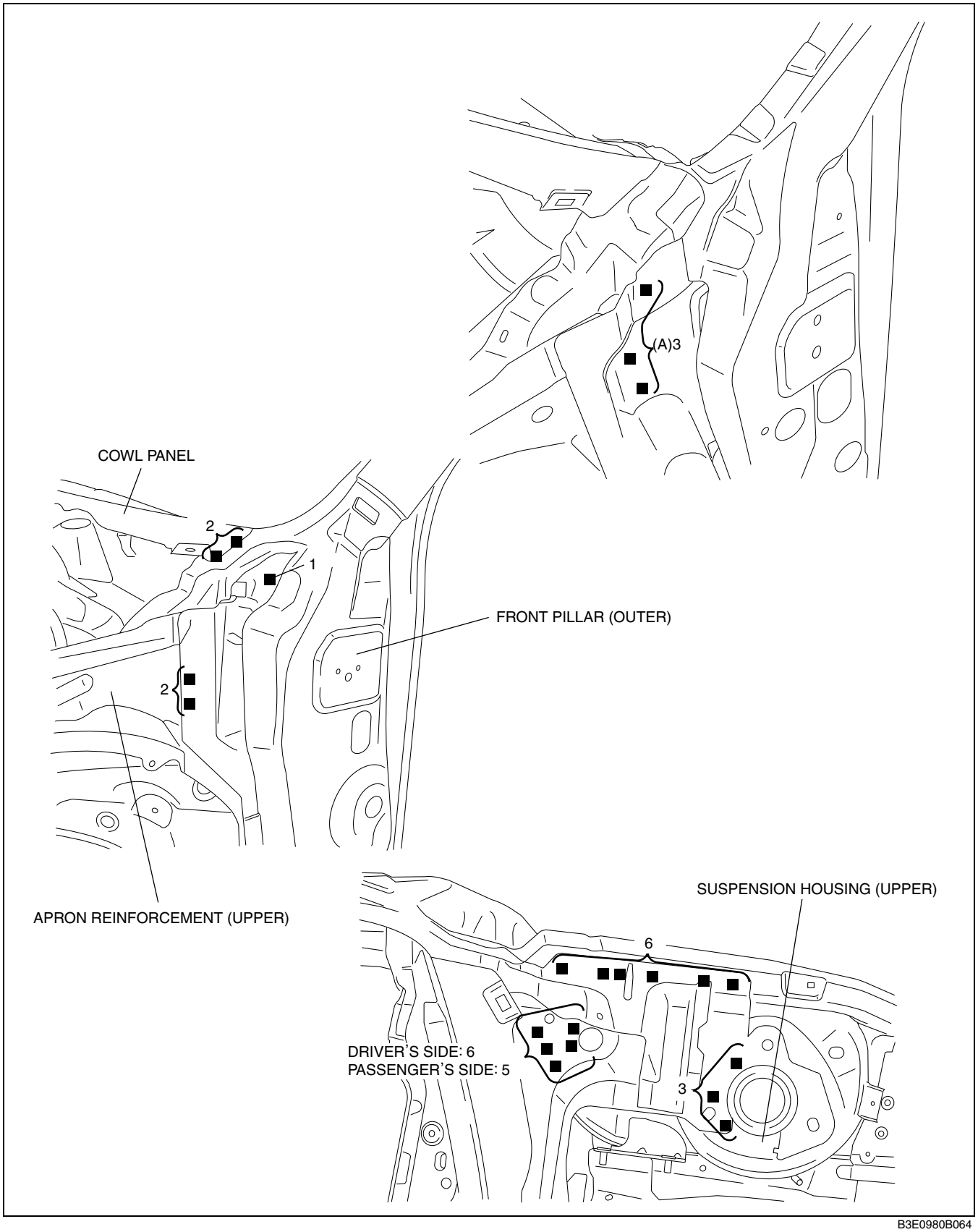


B3E0980B063

FRONT SIDE FRAME COMPONENT INSTALLATION

C3U098053300B02

1. When installing new parts, measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.
3. Weld the 3 locations indicated by (A) and temporarily install the front side frame component.
4. After temporarily installing new parts, make sure the related parts fit properly.
5. Weld the remaining weld locations and install the front side frame component.



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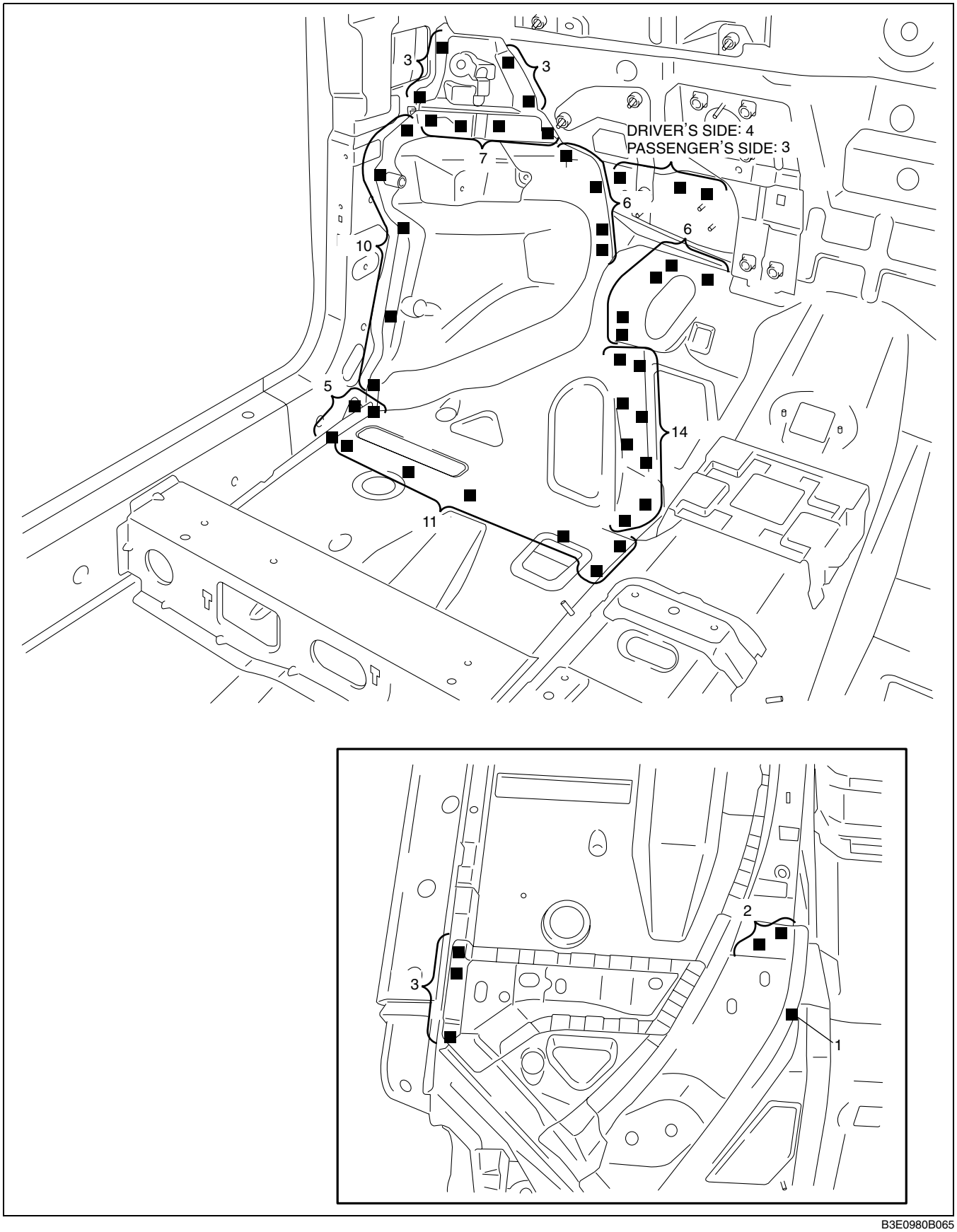

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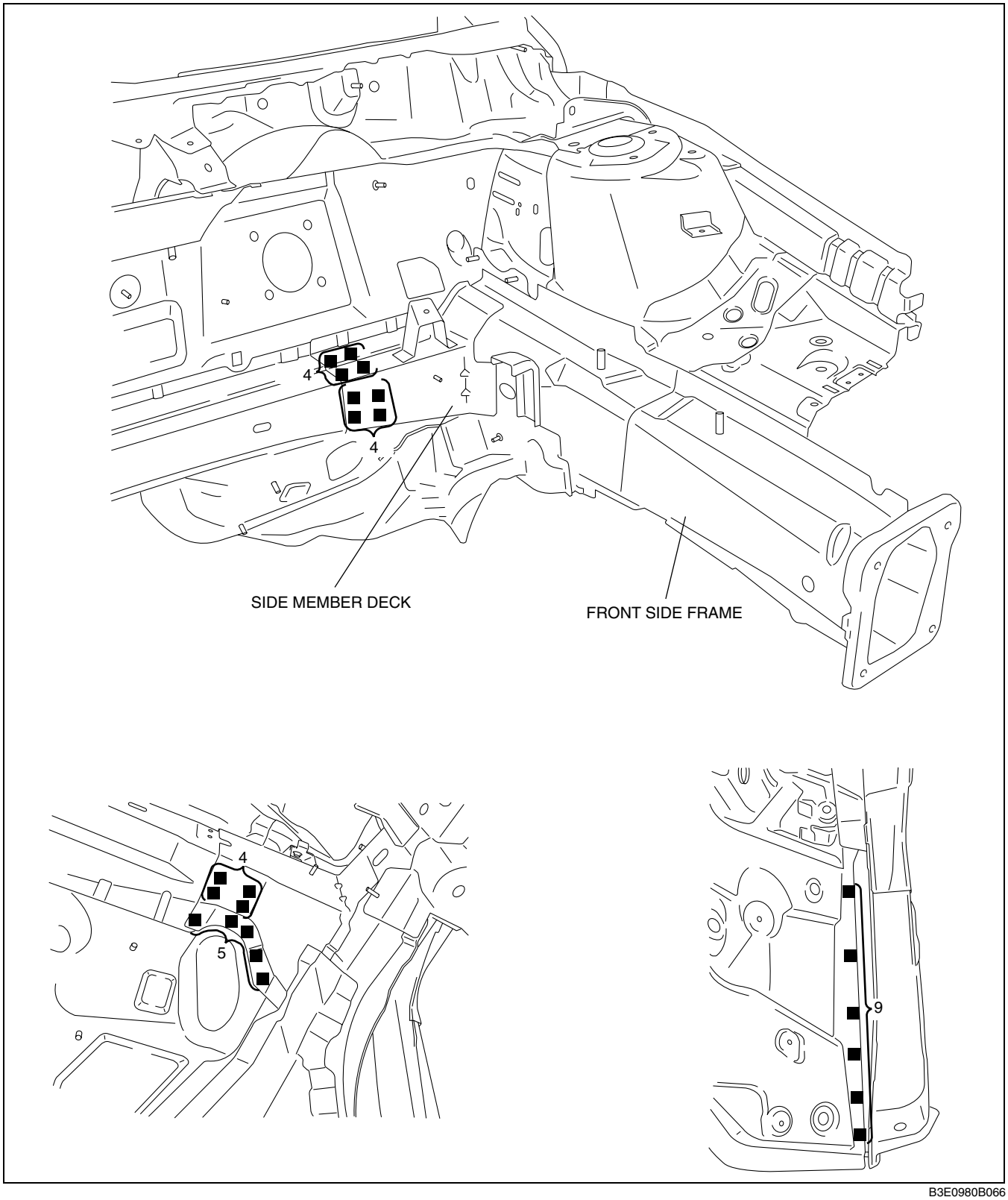
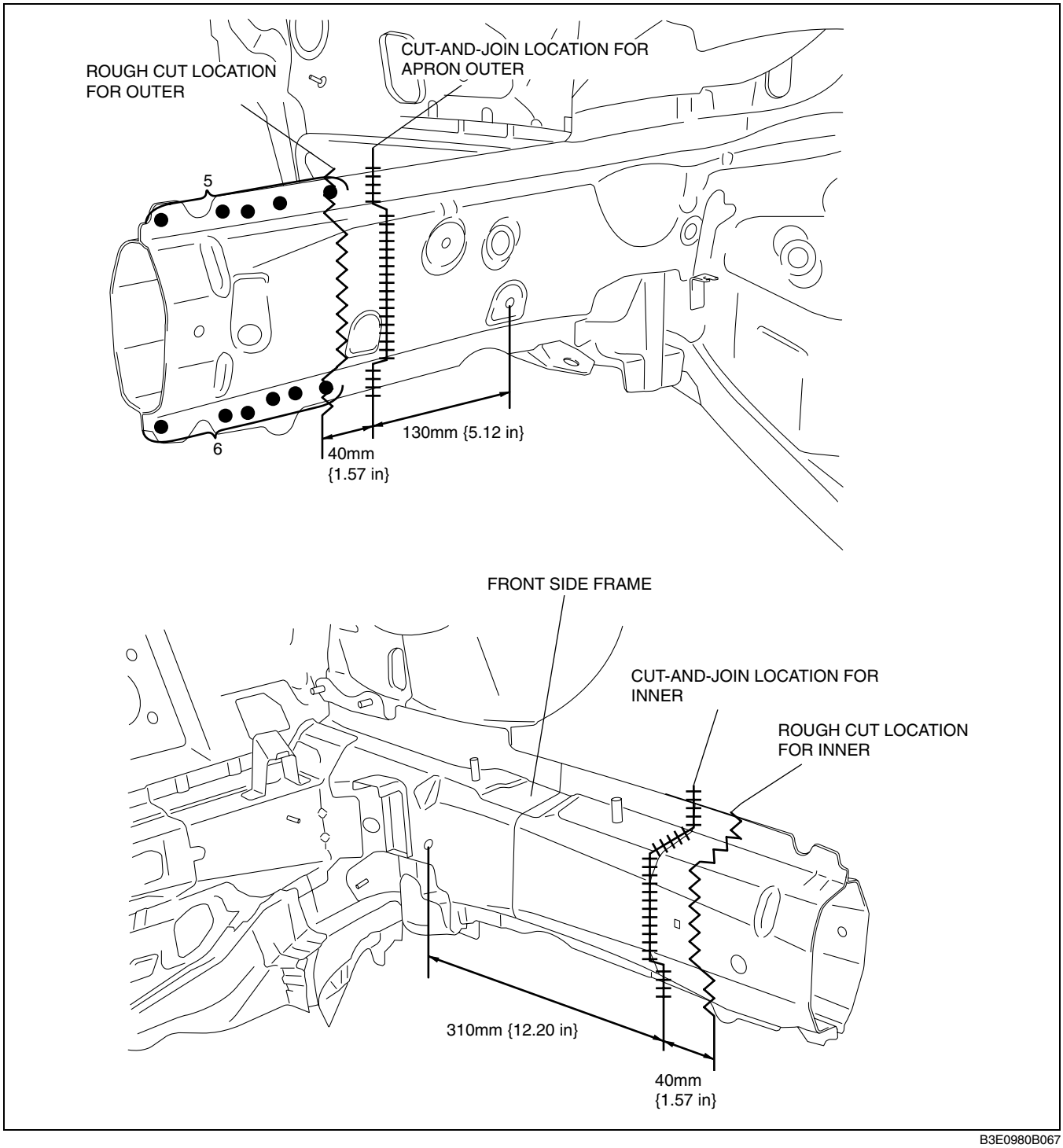


B3E0980B066

FRONT SIDE FRAME (PARTIAL CUTTING) REMOVAL

C3U098053300B03

1. Rough cut and remove the damaged part of the front side frame.



B3E0980B067

FRONT SIDE FRAME (PARTIAL CUTTING) INSTALLATION

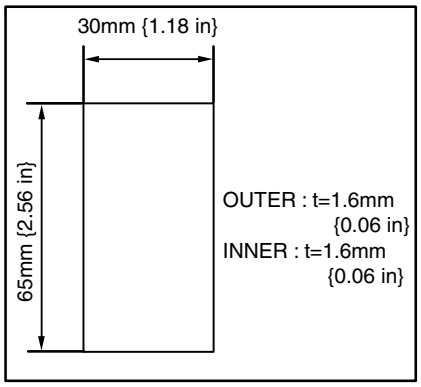
C3U098053300B04

Caution

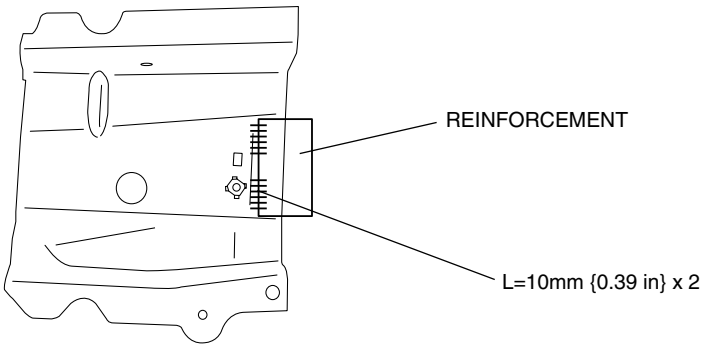
- **The cut-and-joint area indicates the maximum size range of the installation position.**

1. Make a reinforcement panel using the material of the front side frame.
2. To cut-and-join the new and existing parts, cut at the locations for the new part indicated in the figure below and bevel the locations where the new and existing parts are joined.
3. When installing the new parts, trial-fit new and existing parts, and then measure and adjust the body to conform with standard dimensions.

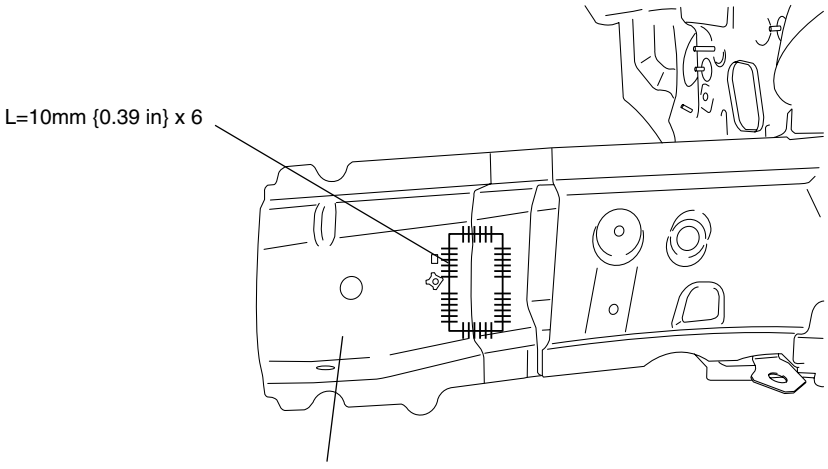
4. To install the inner, trial-fit the new and existing parts, weld the existing parts and the reinforcement, and then butt weld the new and existing parts.
5. Because the outer cannot be welded to the existing parts from the inside of the frame, drill 2 plug weld holes at the locations indicated by (A) on the existing parts. Install the reinforcement and the existing parts by plug welding from the outside of the frame, then butt weld the new and existing parts.
6. Grind the area where the inner and outer are butt welded with a disk grinder to finish the surface.



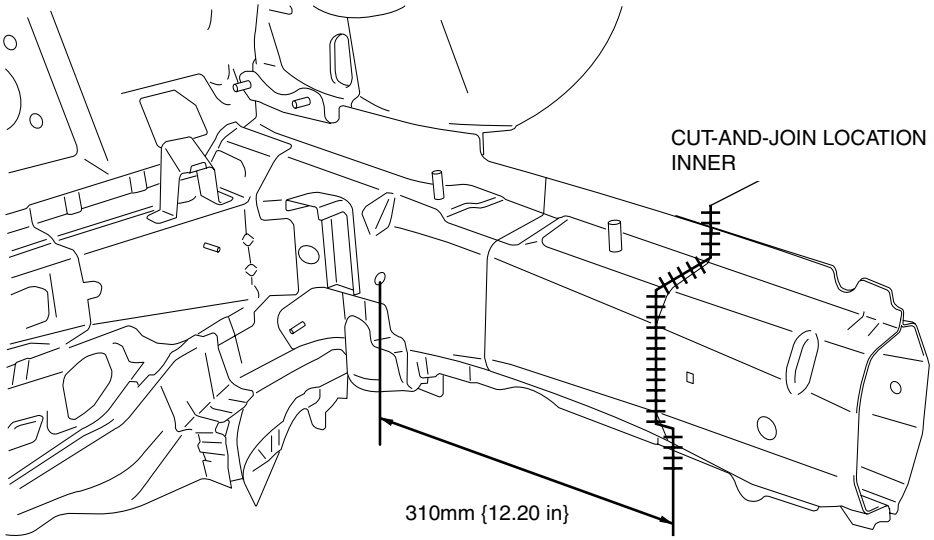
REINFORCEMENT



NEW FRONT SIDE FRAME (INNER)



FRONT SIDE FRAME (INNER)



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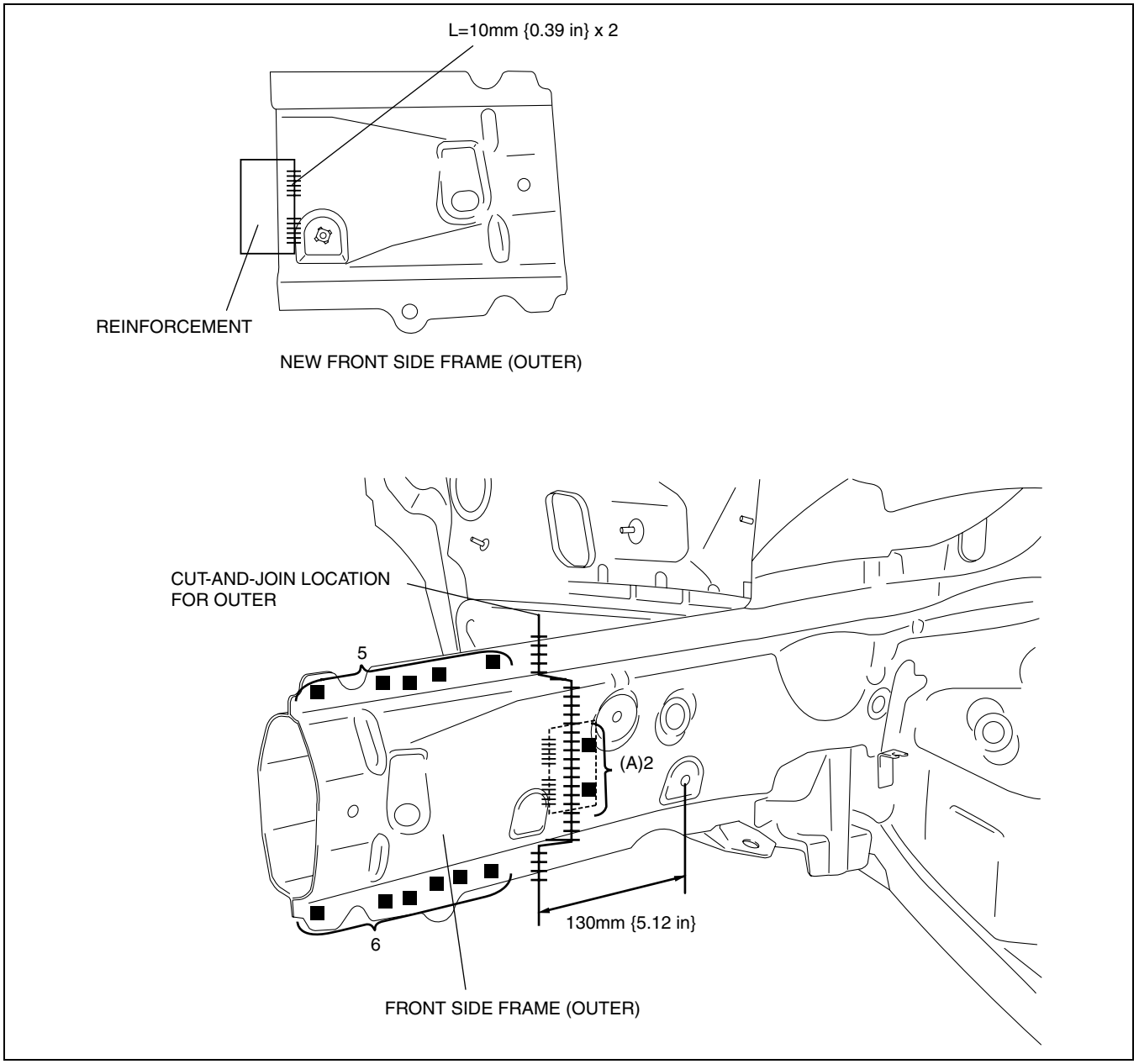
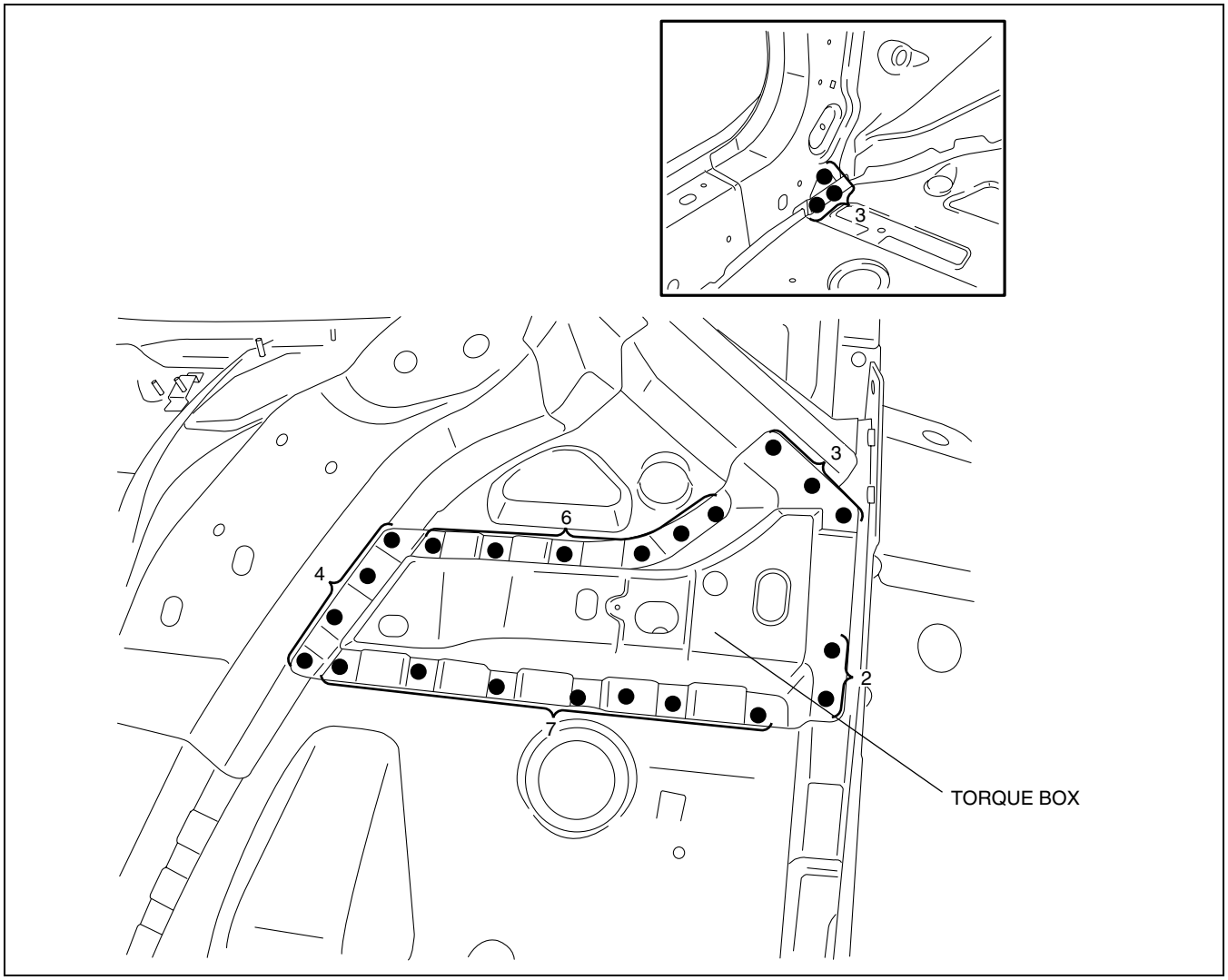


B3E0980B069

TORQUE BOX REMOVAL

C3U098053381B01

1. Remove the torque box.

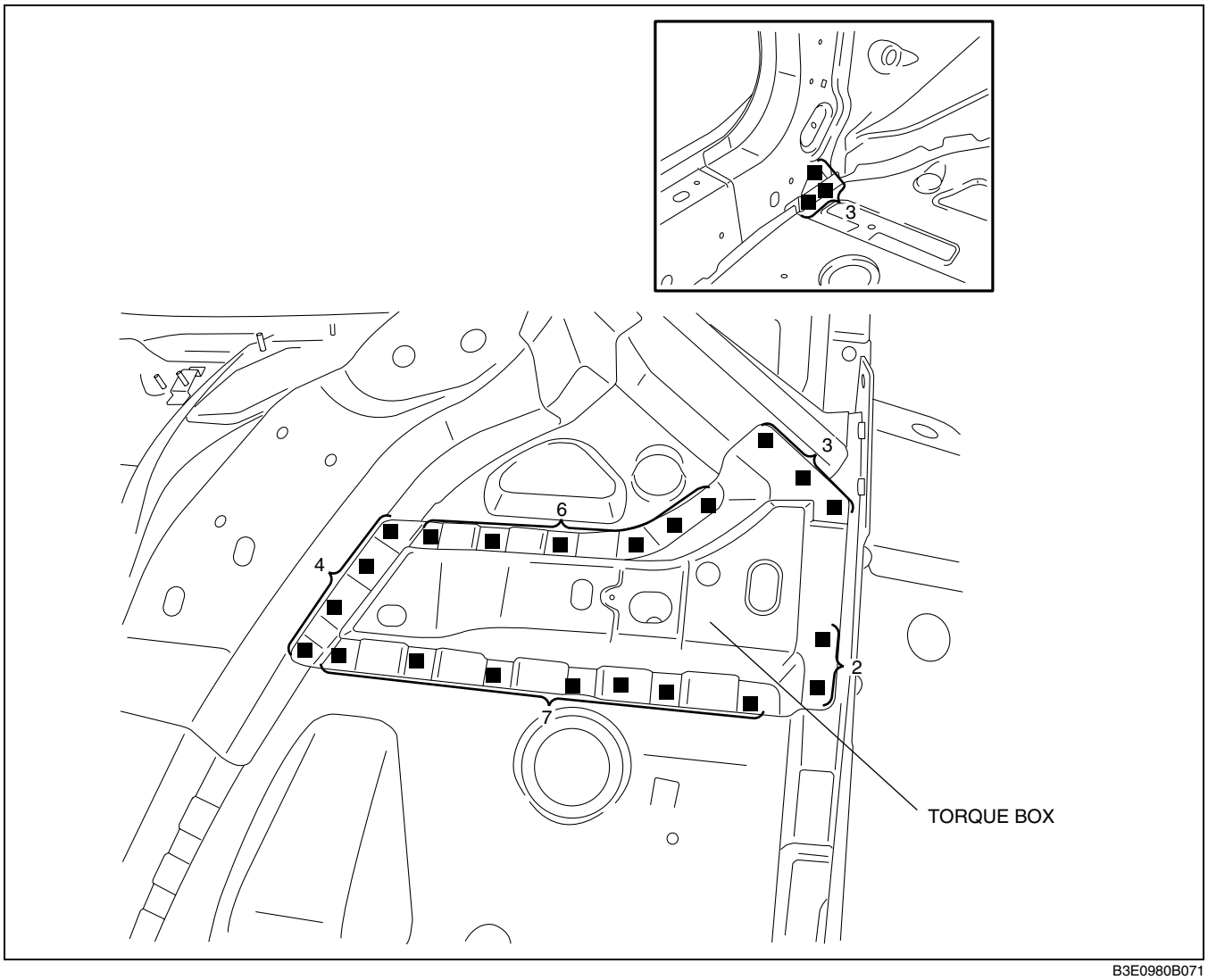


B3E0980B070

TORQUE BOX INSTALLATION

C3U098053381B02

1. When installing new parts, measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.
3. After temporarily installing new parts, make sure the related parts fit properly.

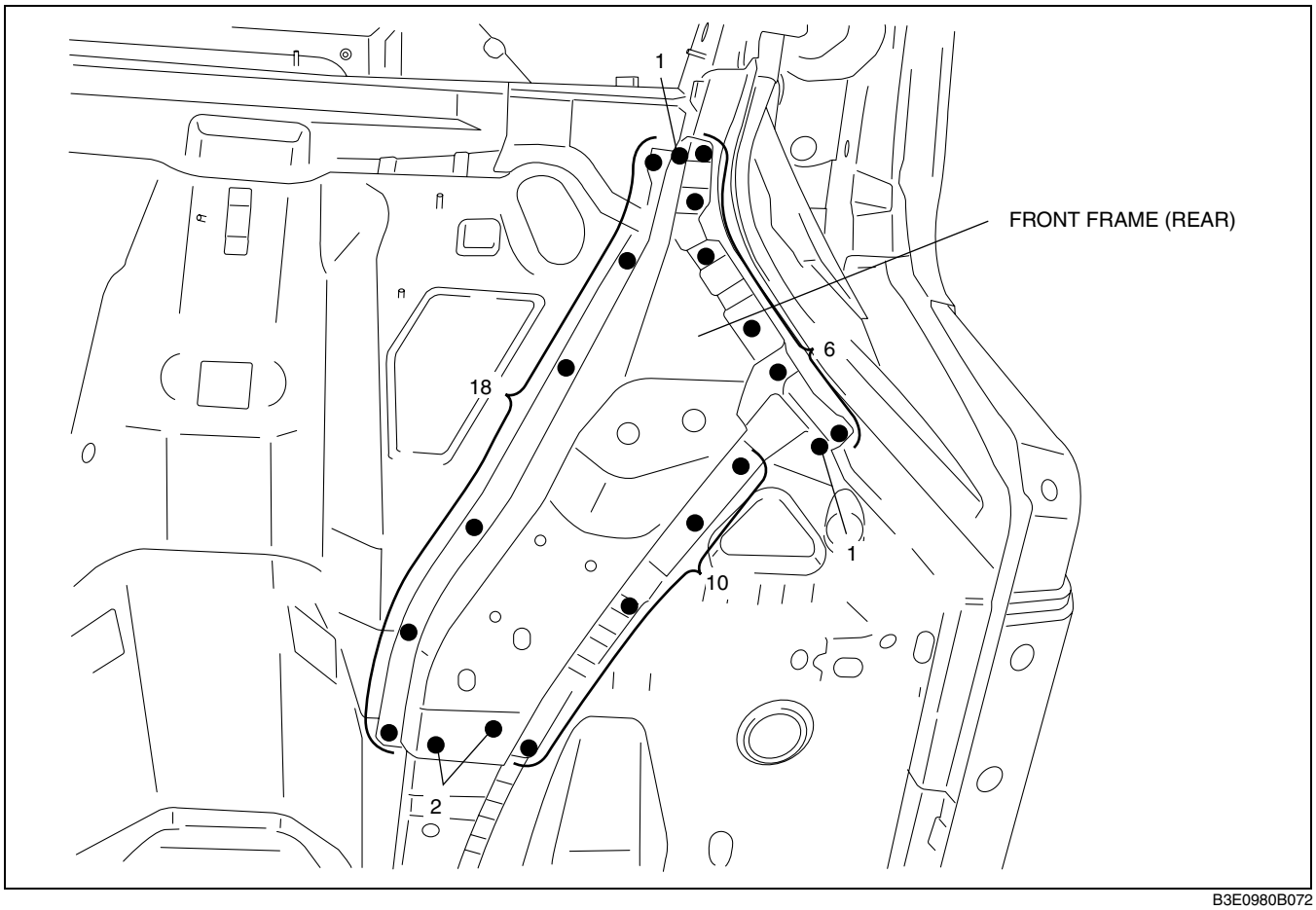


B3E0980B071

FRONT FRAME (REAR) REMOVAL

C3U098053390B01

1. Remove the front frame (rear).

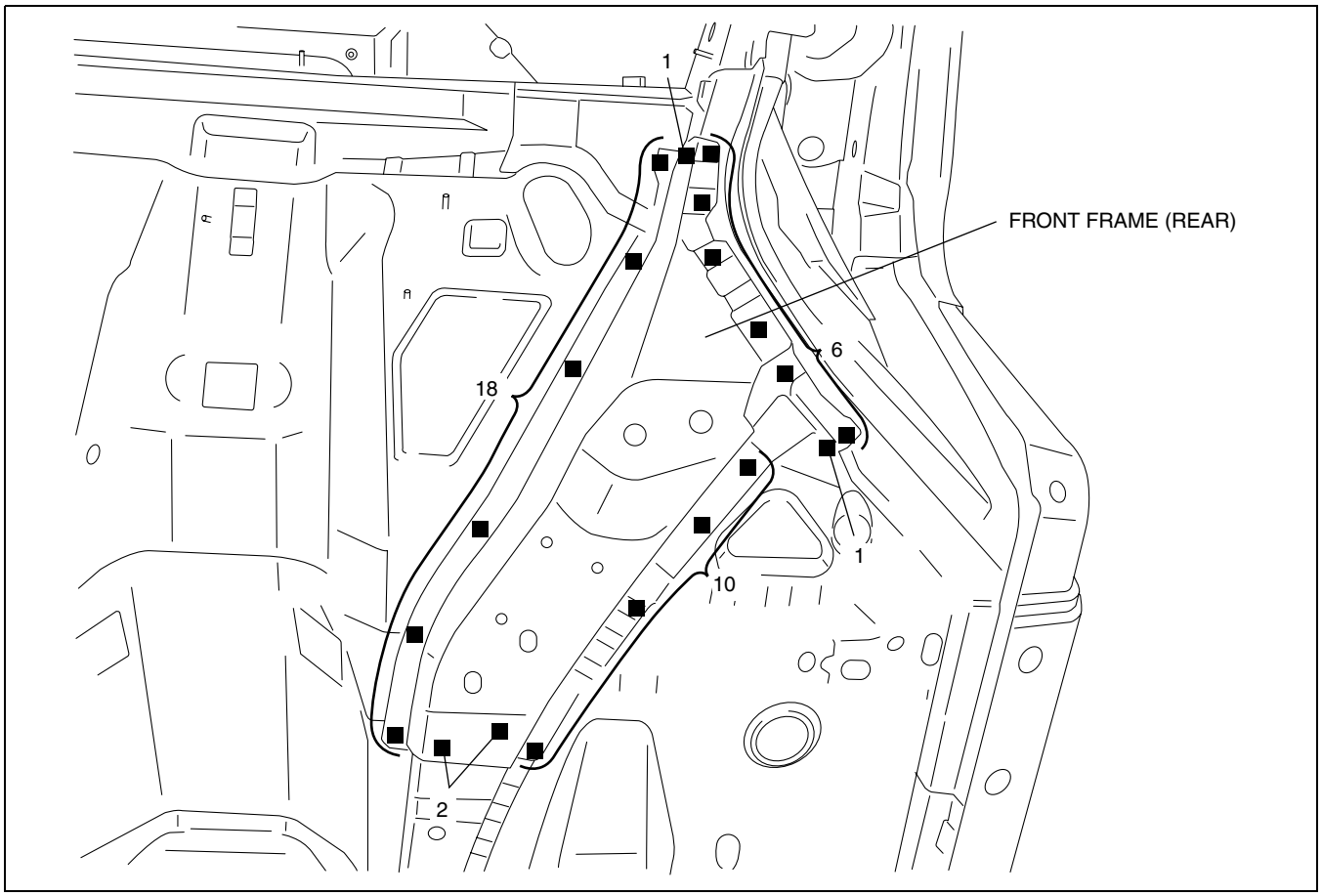


B3E0980B072

FRONT FRAME (REAR) INSTALLATION

C3U098053390B02

1. When installing new parts, measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.
3. After temporarily installing new parts, make sure the related parts fit properly.



B3E0980B073

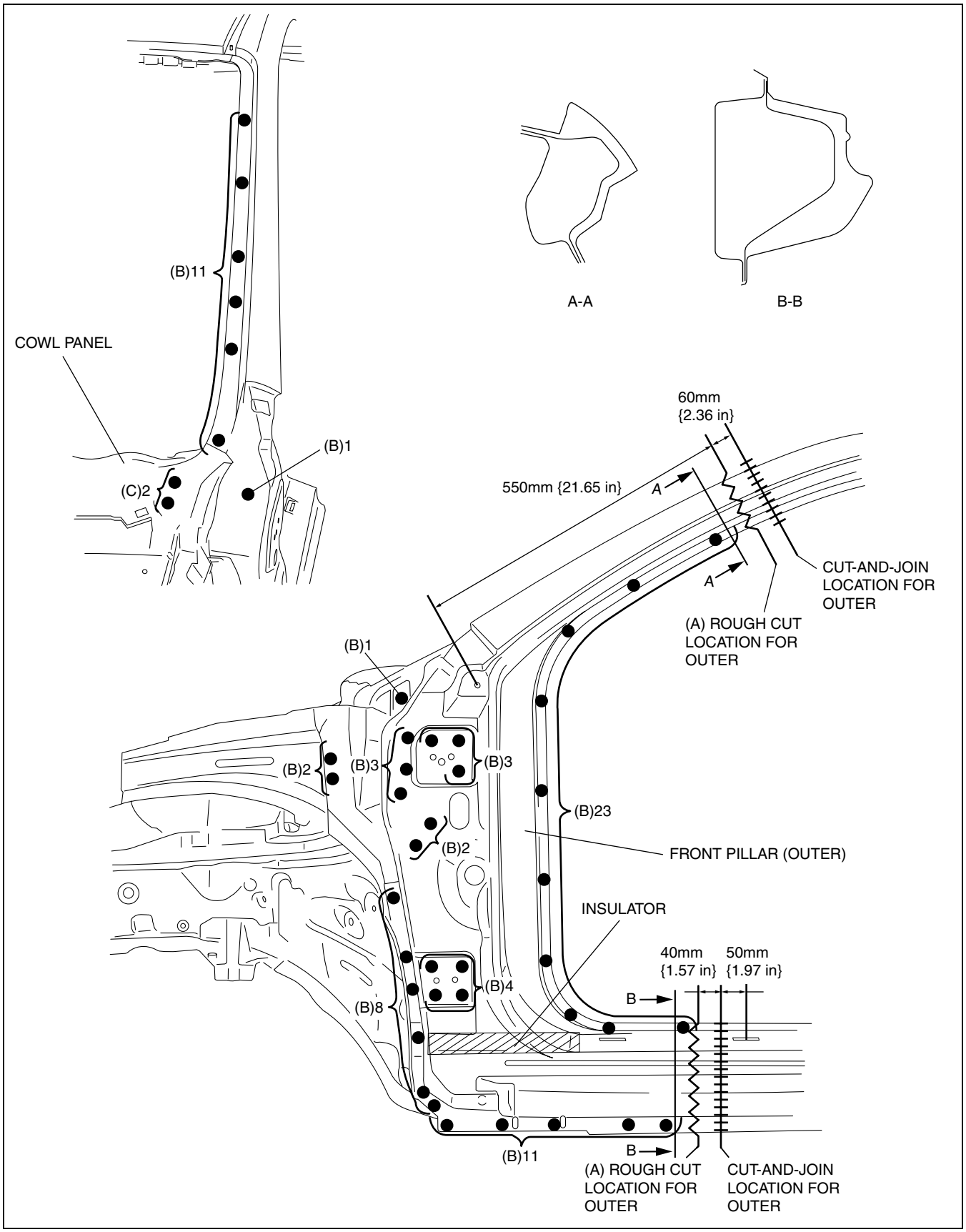
FRONT PILLAR REMOVAL

C3U098074090B01

1. Rough cut area (A) and drill the 69 locations indicated by (B).

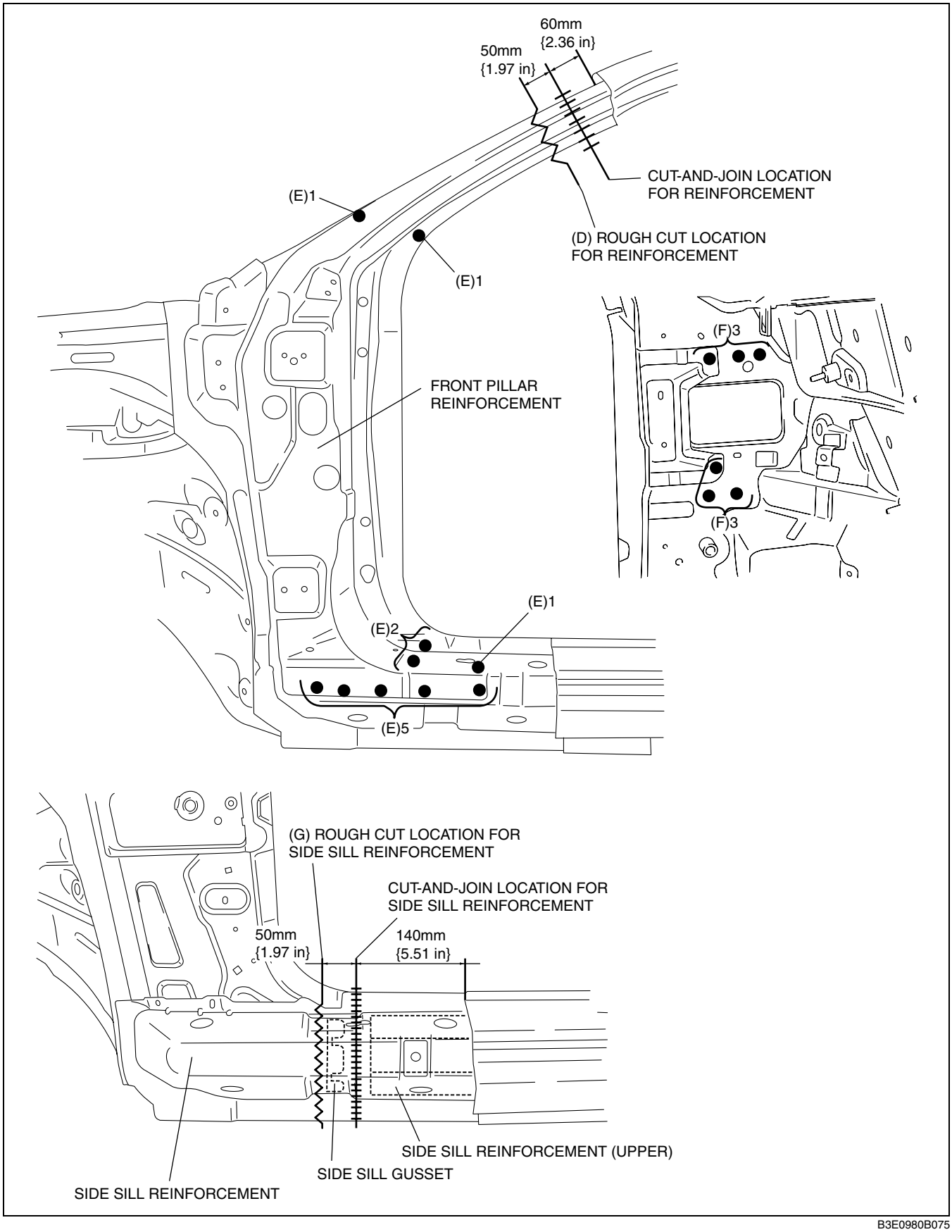
Caution
- **Avoid cutting with a blowtorch or similar tools as the insulator (shaded area) is flammable.**

2. When the front pillar (outer) is being removed, the cowl panel may interfere with the front pillar (outer) and make removal difficult. Therefore, drill the 2 locations indicated by (C) and then open the cowl panel outward.
3. Remove the front pillar (outer).



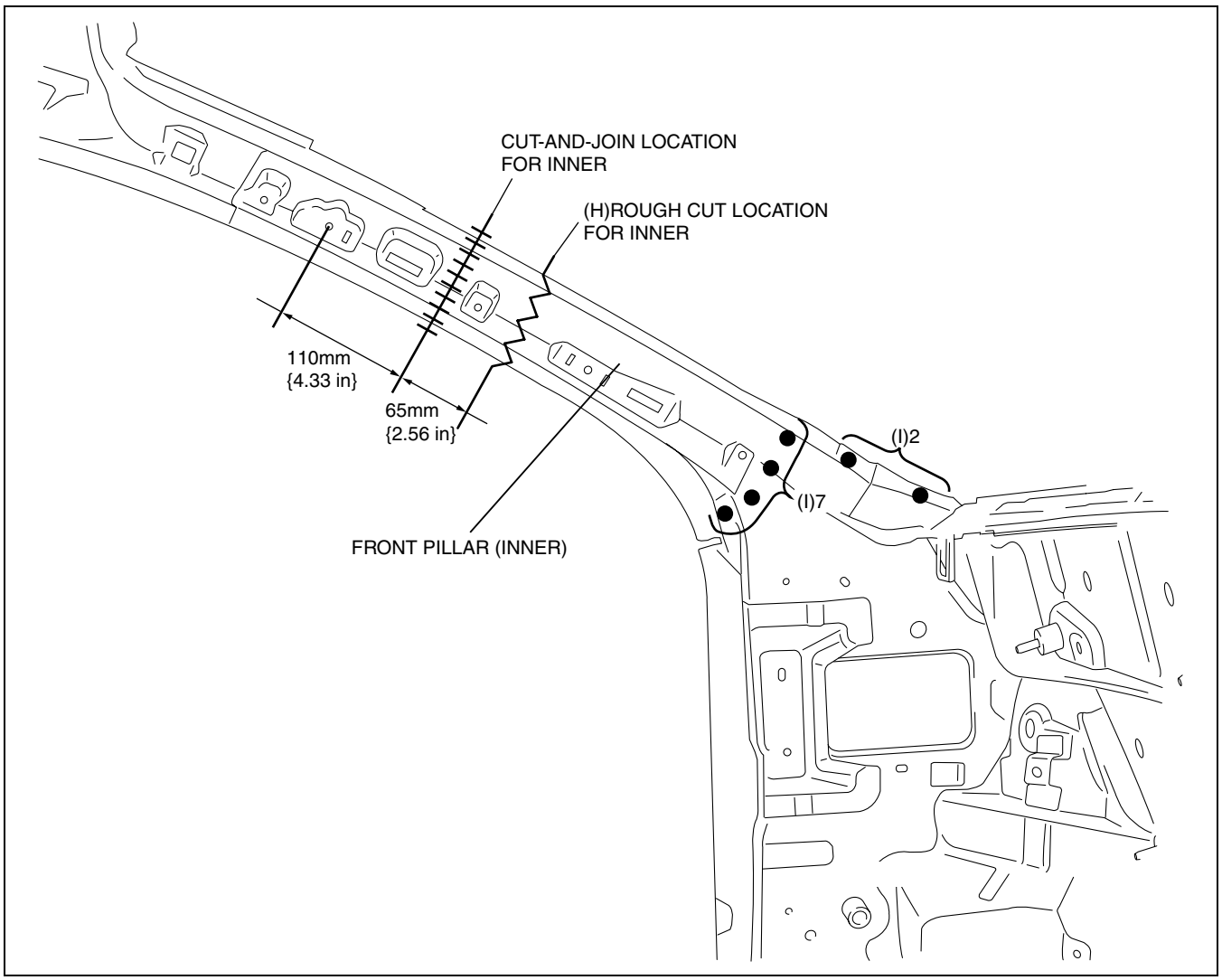
B3E0980B074

4. Rough cut area (D) and drill the 10 locations indicated by (E).
5. Drill the 6 locations indicated by (F) from the interior.
6. Remove the front pillar reinforcement.
7. Rough cut area (G) and remove the side sill reinforcement.



B3E0980B075

8. Rough cut area (H), drill the 9 locations indicated by (I), and then remove the front pillar (inner).



B3E0980B076

FRONT PILLAR INSTALLATION

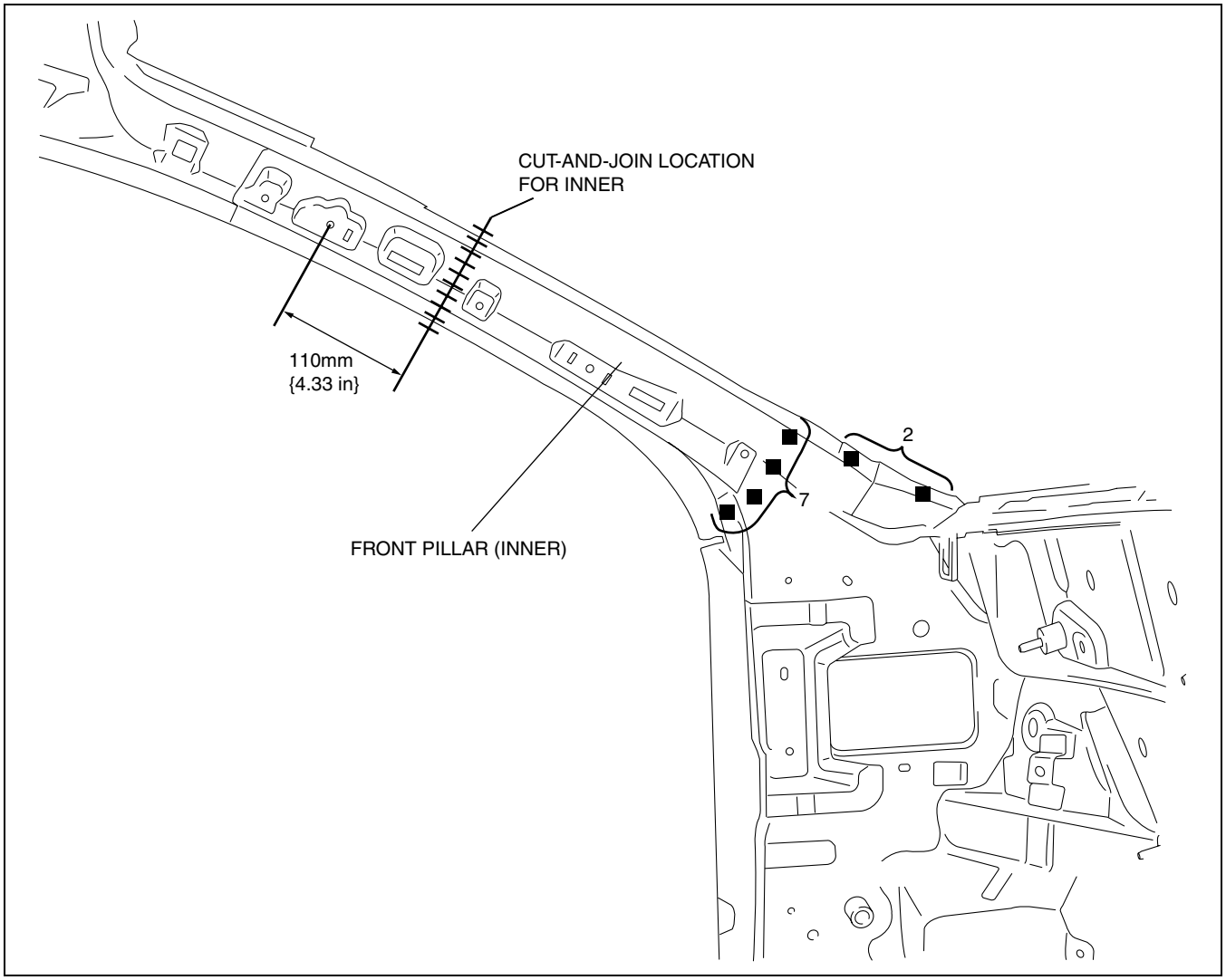
C3U098074090B02

1. When joining and cutting the new and existing parts, trial fit the new part in position, and then measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.

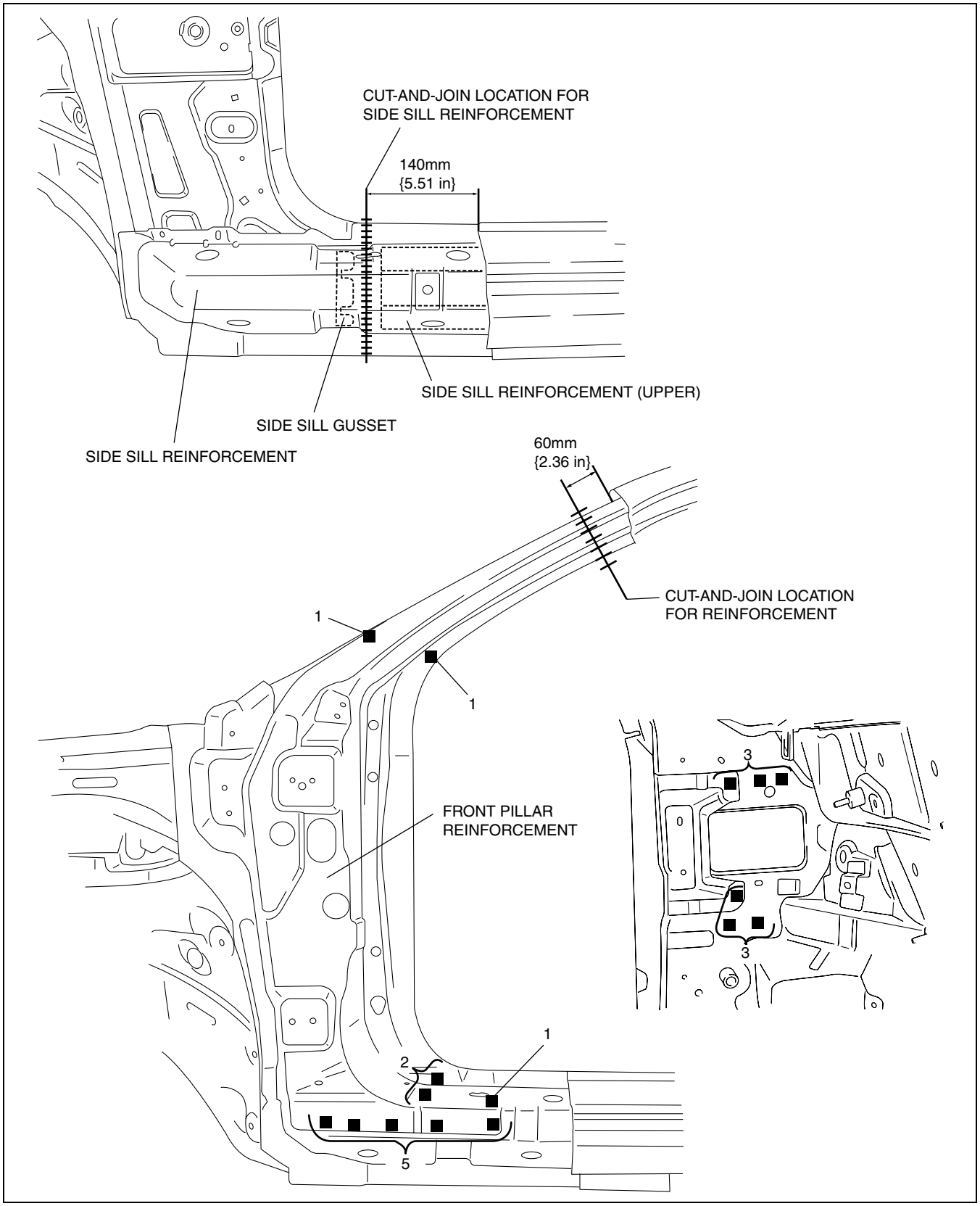
Note

- In areas where the outer, reinforcement, inner, and other parts are in 3-4 layers, drill holes for plug welds in all but the innermost panel.

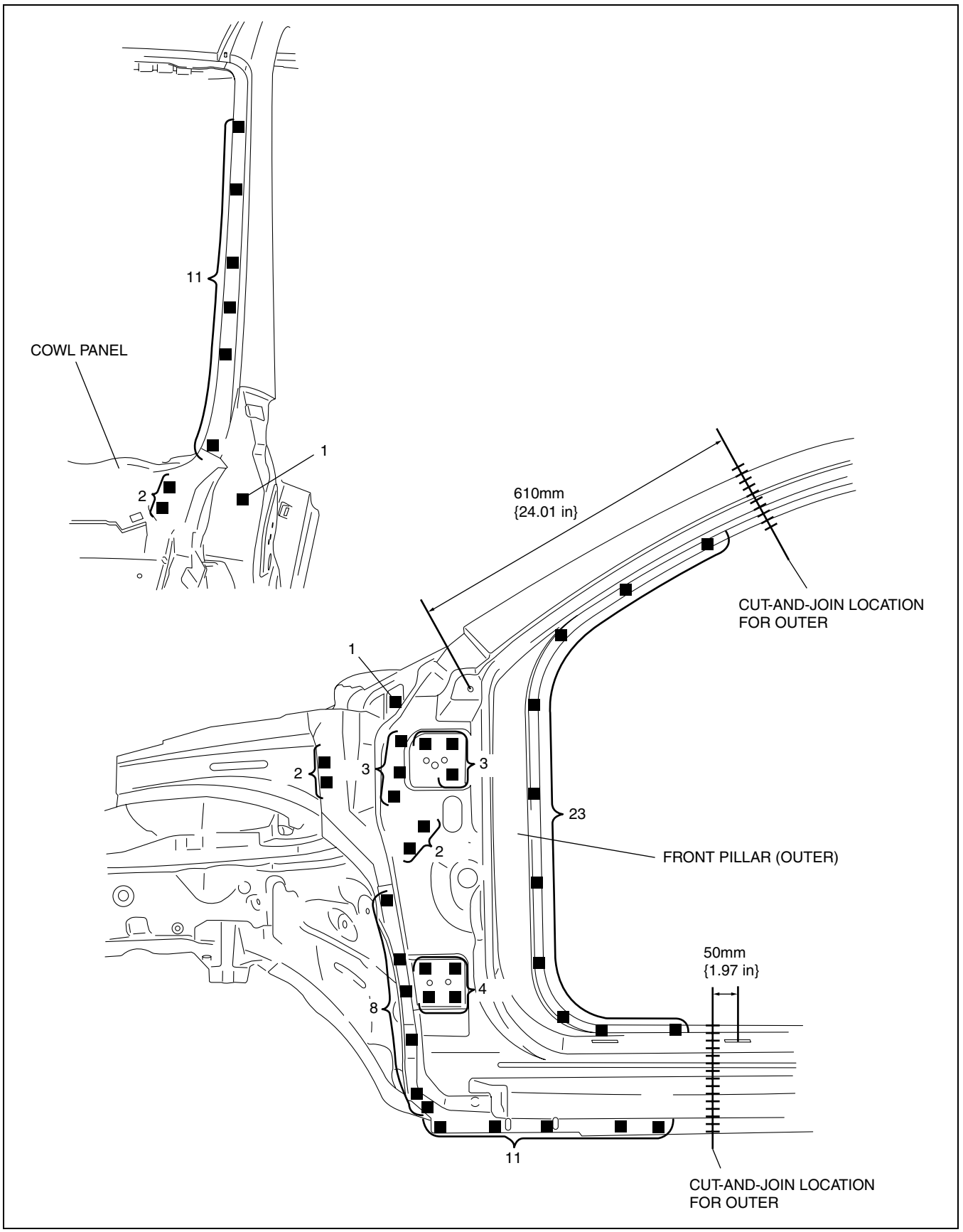
3. After temporarily installing new parts, make sure the related parts fit properly.



B3E0980B077



B3E0980B078



B3E0980B079

CENTER PILLAR REMOVAL

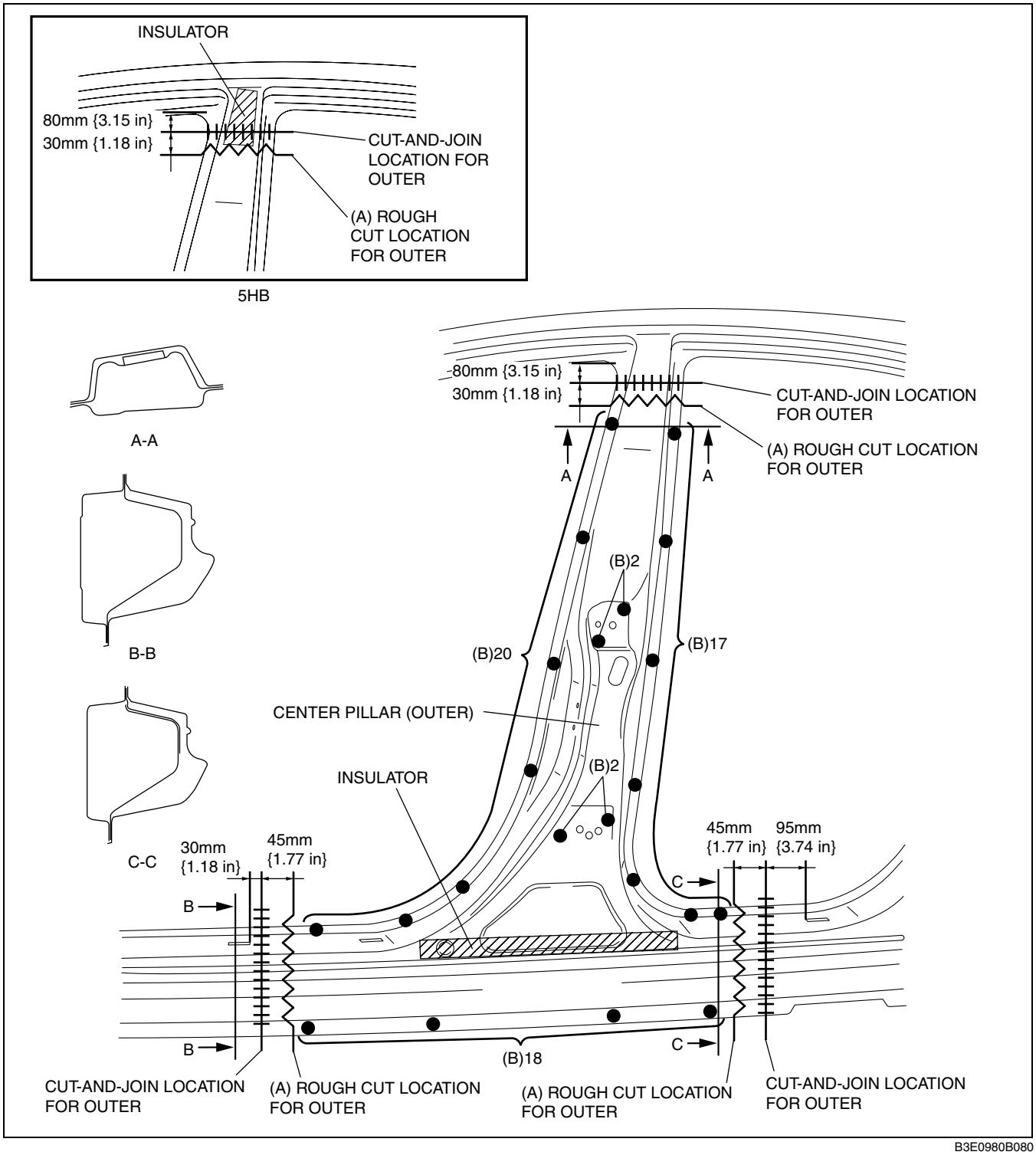
C3U098070350B01

1. Rough cut area (A), drill the 59 locations indicated by (B), and then remove the center pillar (outer).

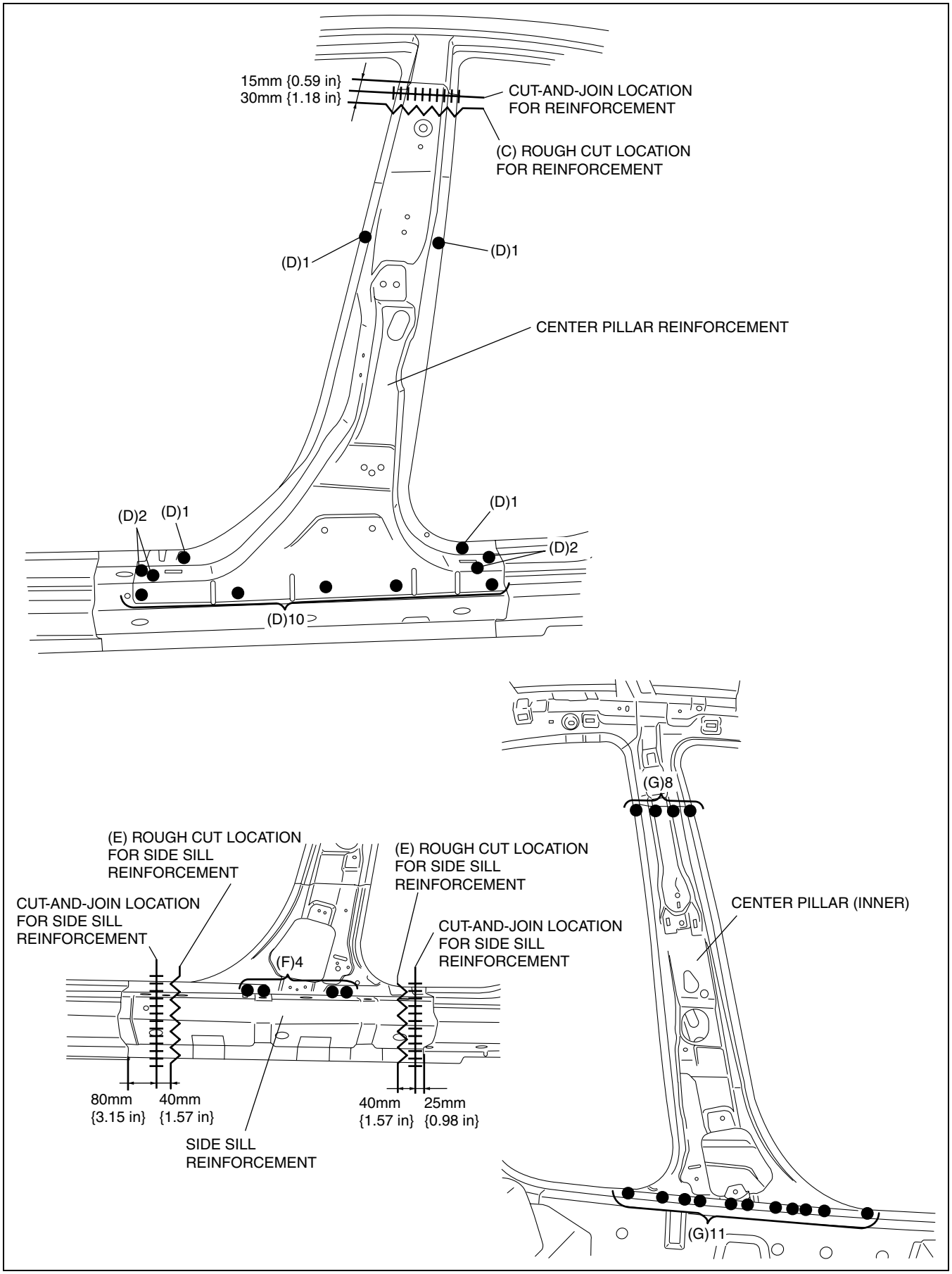
Caution

- **Avoid cutting with a blowtorch or similar tools as the insulator (shaded area) is flammable.**

2. Rough cut area (C), drill the 18 locations indicated by (D), and then remove the center pillar reinforcement.
3. Rough cut area (E), drill the 4 locations indicated by (F), and then remove the side sill reinforcement.
4. Drill the 19 locations indicated by (G) and remove the center pillar (inner).



B3E0980B080



B3E0980B081

CENTER PILLAR INSTALLATION

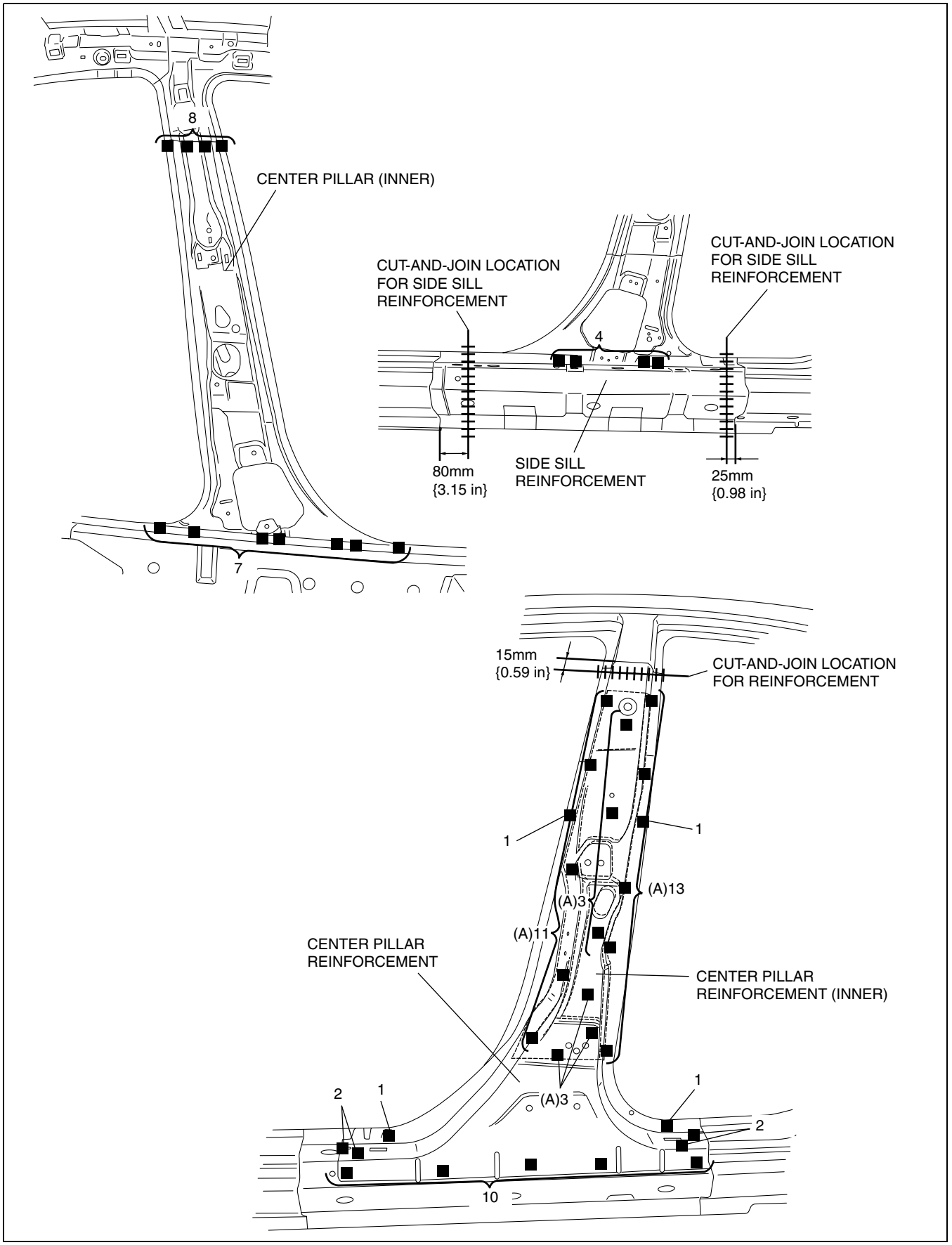
C3U098070350B02

1. When joining and cutting the new and existing parts, trial fit the new part in position, and then measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.

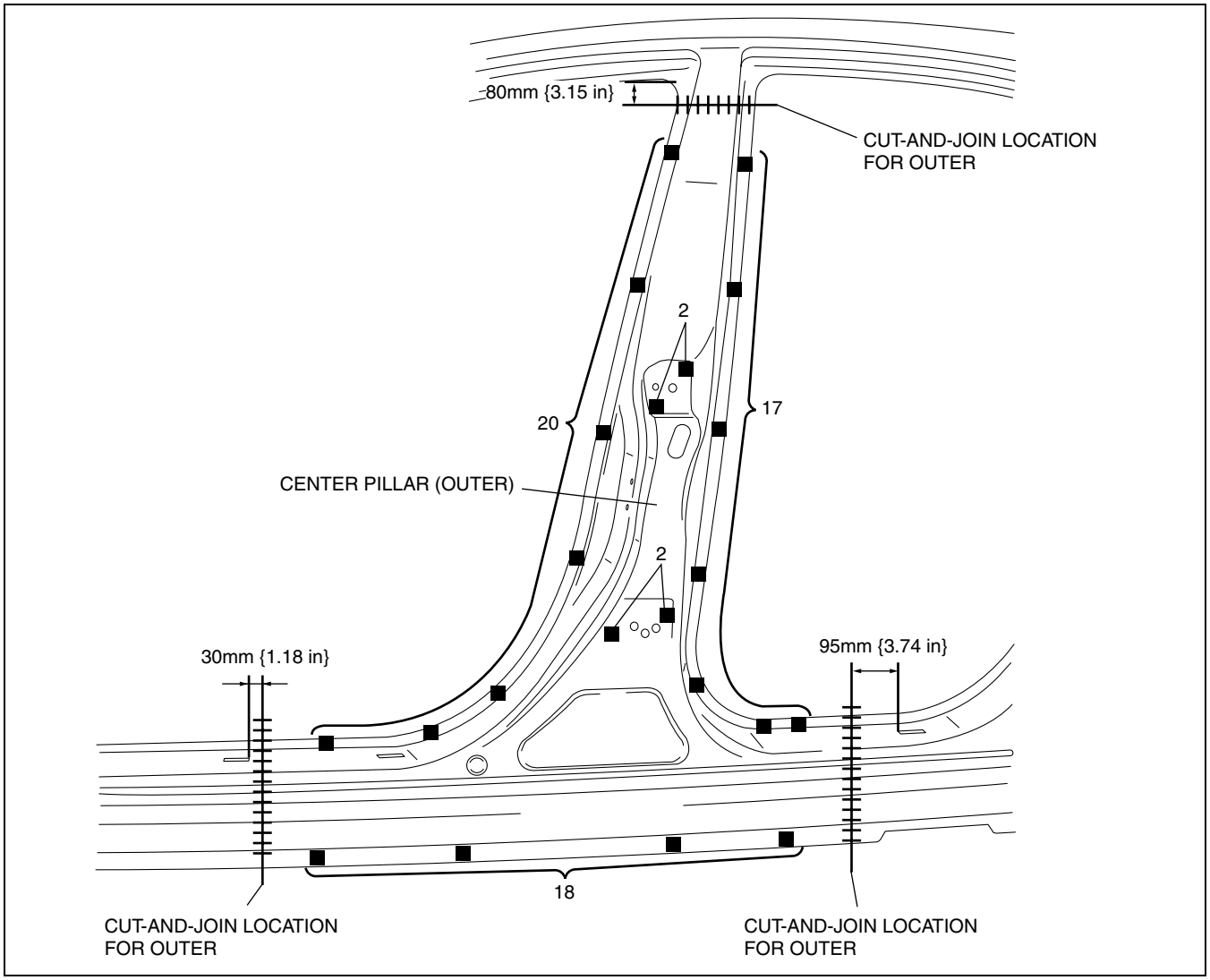
Note

- In areas where the outer, reinforcement, inner, and other parts are in 3-4 layers, drill holes for plug welds in all but the innermost panel.

3. Install in the following order: inner, reinforcement, and outer.
4. Weld the 30 locations indicated by (A) and install the center pillar reinforcement (inner) to the center pillar reinforcement.
5. After temporarily installing new parts, make sure the related parts fit properly.



B3E0980B082



B3E0980B083

REAR FENDER PANEL REMOVAL

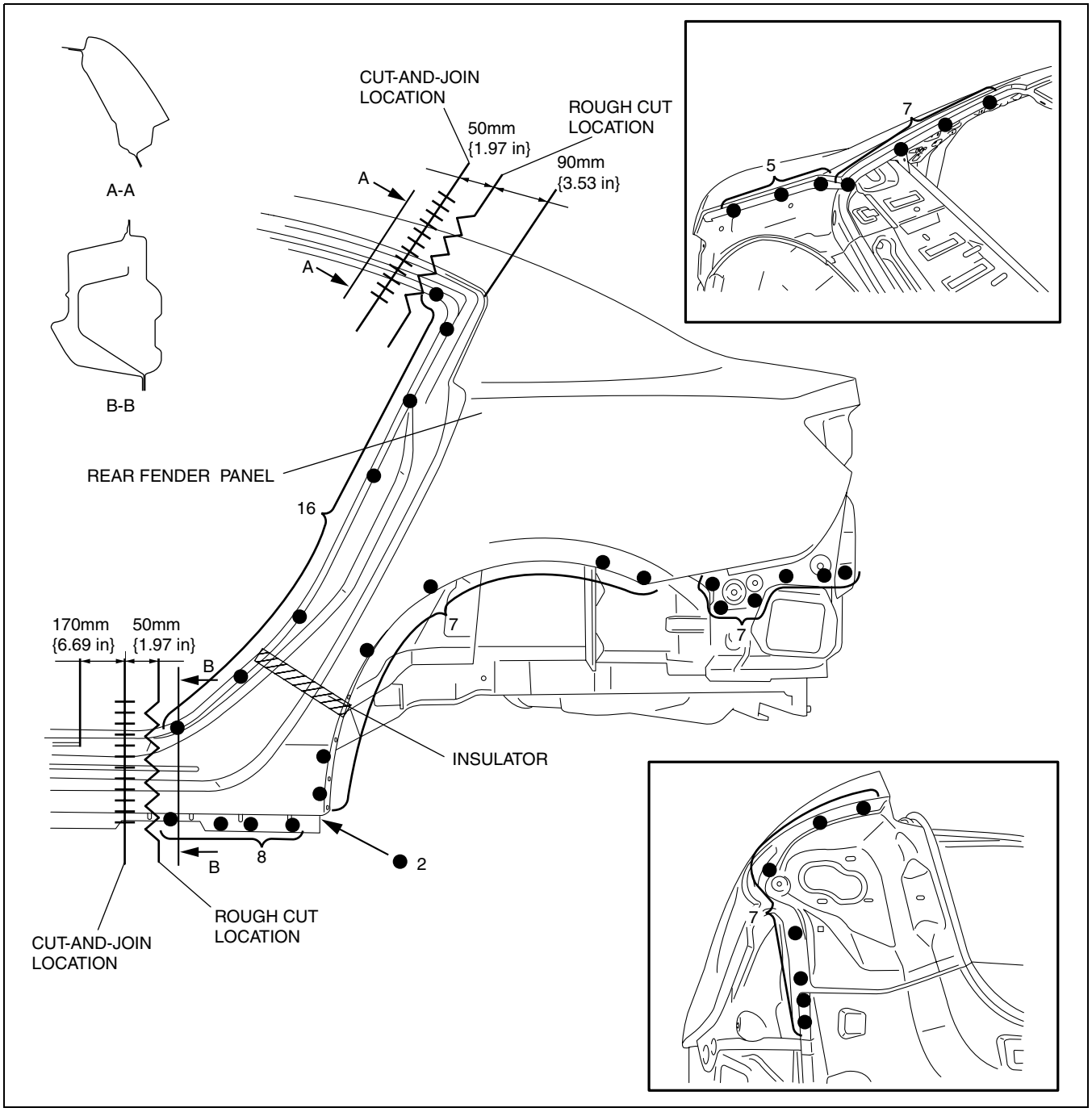
C3U098074100B01

4SD

Caution

- **Avoid cutting with a blowtorch or similar tools as the insulator (shaded area) is flammable.**

1. The rear fender panel and the rear pillar (inner) are joined with glue at the wheel arch line. Use a chisel or similar tool to separate the rear fender panel from the rear pillar (inner), then remove the rear fender panel.

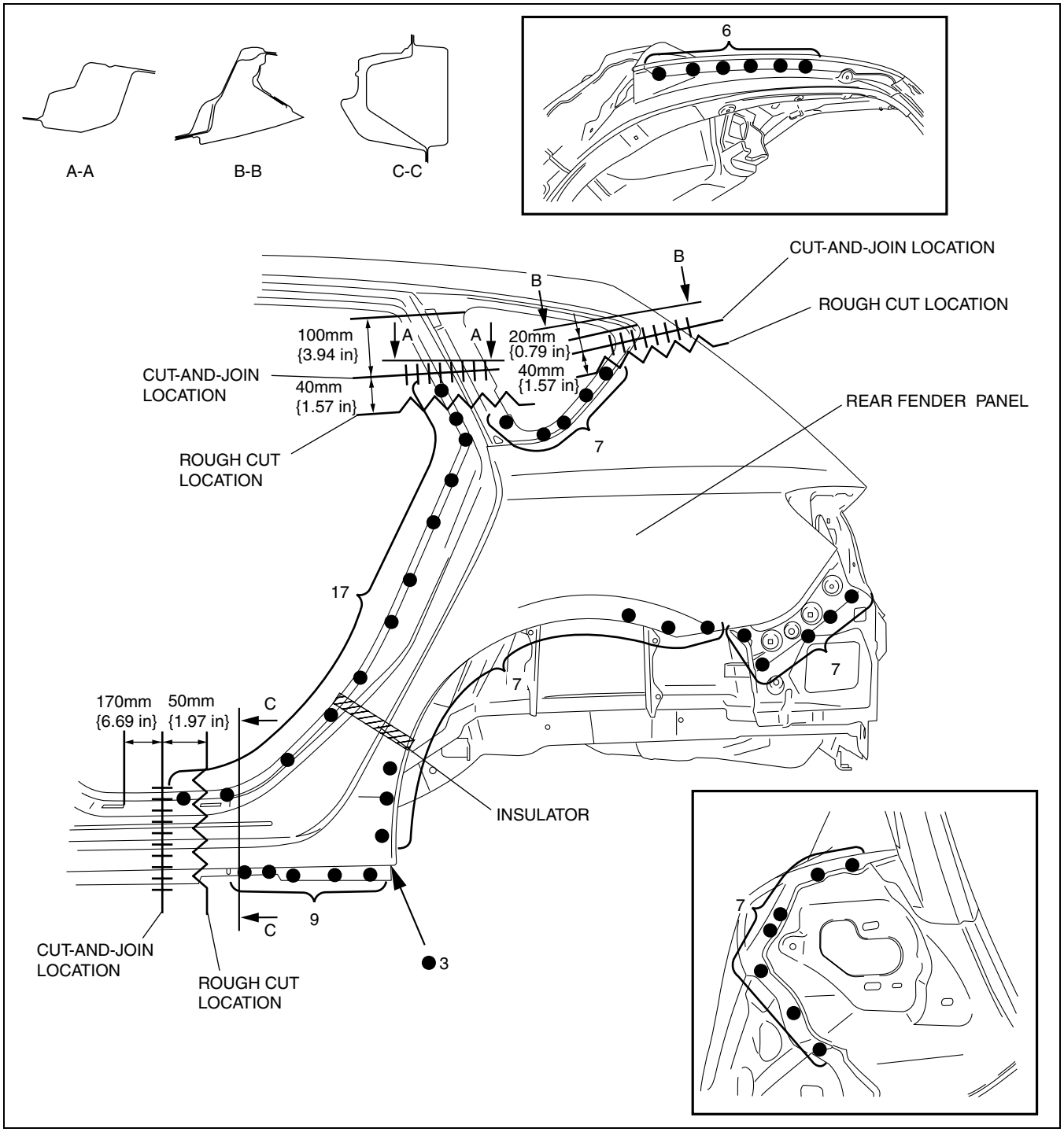


B3E0980B084

5HB

Caution
- **Avoid cutting with a blowtorch or similar tools as the insulator (shaded area) is flammable.**

1. The rear fender panel and the rear pillar (inner) are joined with glue at the wheel arch line. Use a chisel or similar tool to separate the rear fender panel from the rear pillar (inner), then remove the rear fender panel.



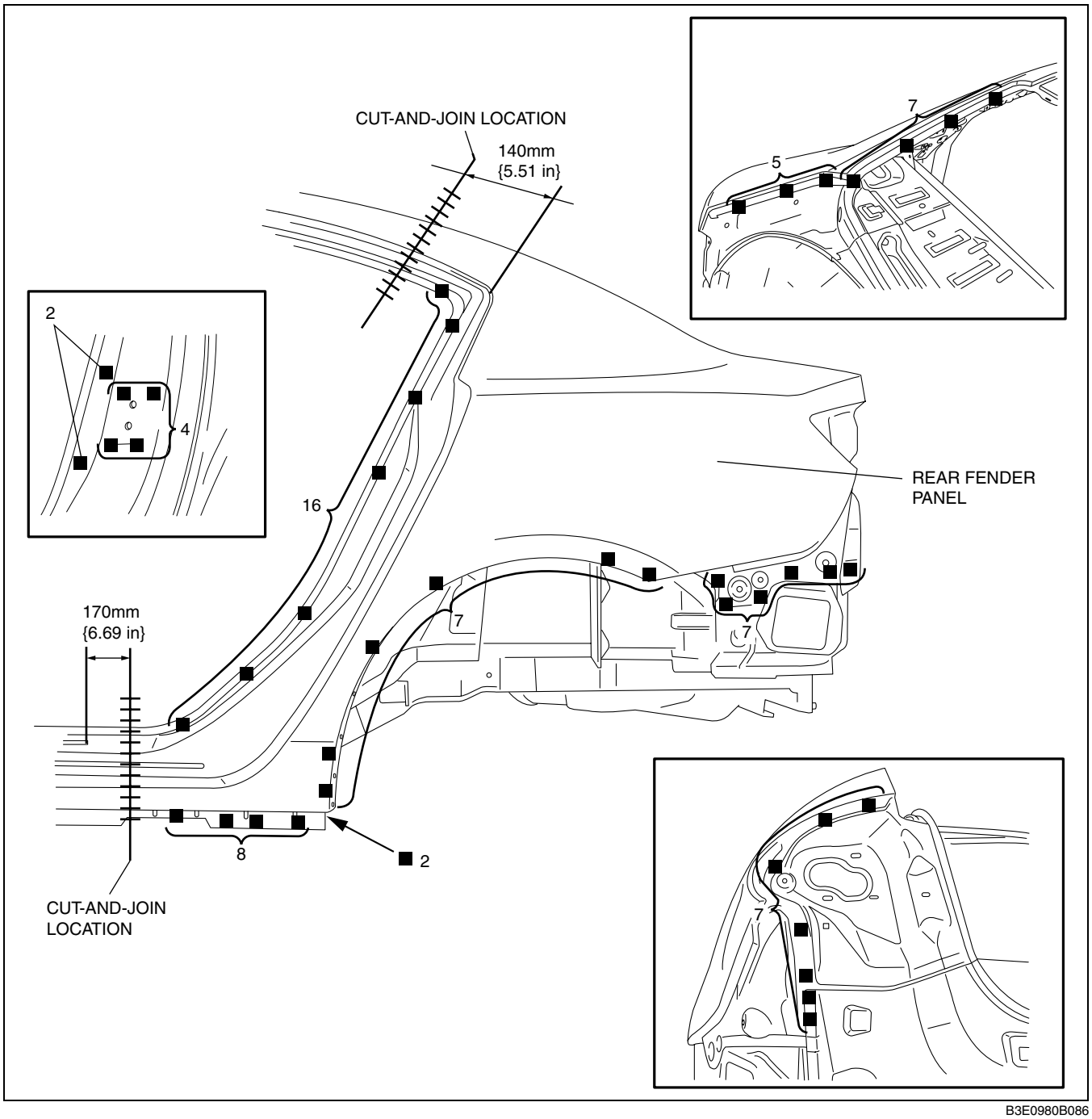
B3E0980B085

REAR FENDER PANEL INSTALLATION

C3U098074100B02

4SD

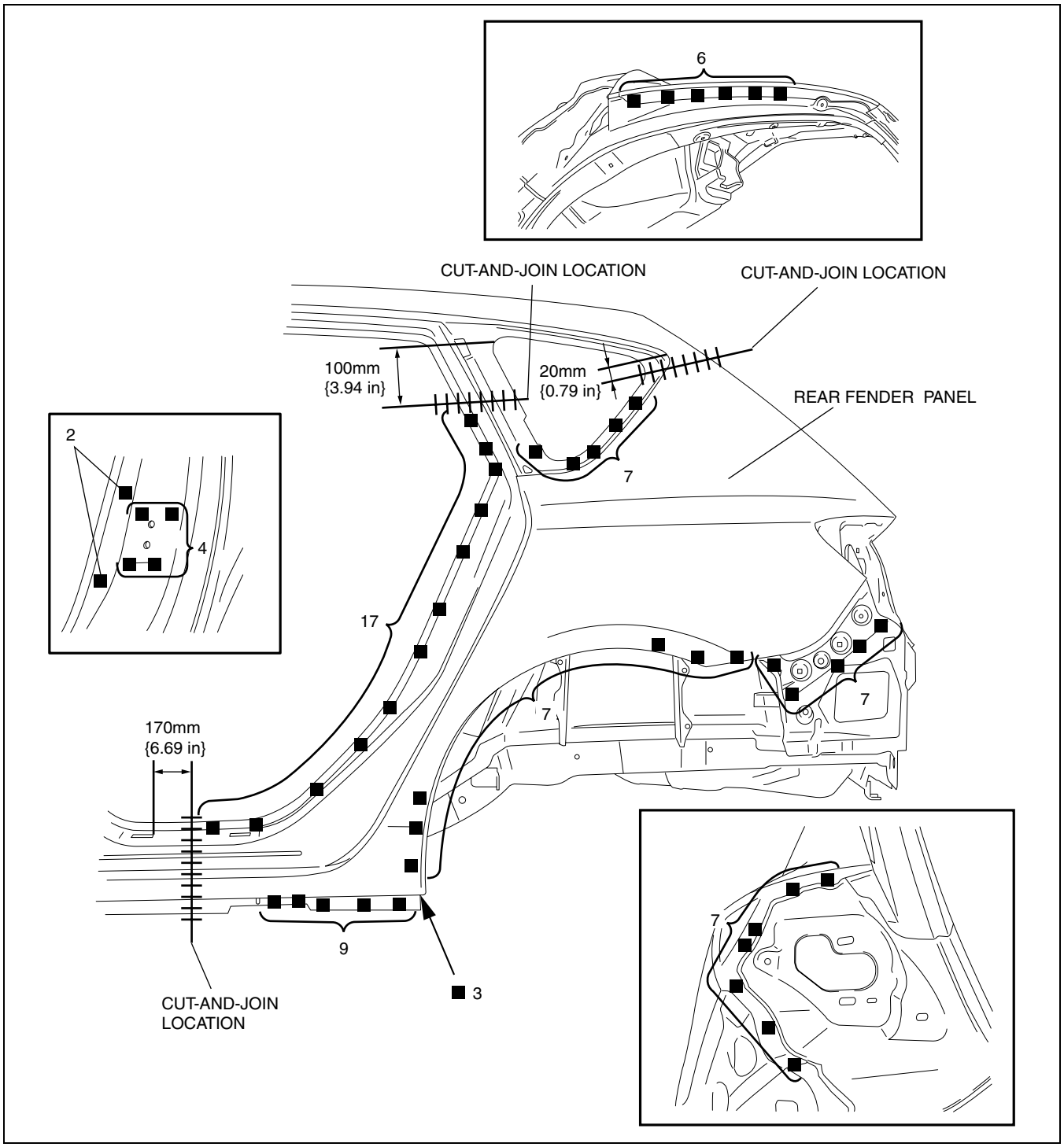
1. When joining and cutting the new and existing parts, trial fit the new part in position, and then measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.
3. Before installing new parts, apply spot weld sealer to the wheel arch line.
4. After temporarily installing new parts, make sure the related parts fit properly.



B3E0980B086

5HB

1. When joining and cutting the new and existing parts, trial fit the new part in position, and then measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.
3. Before installing new parts, apply spot weld sealer to the wheel arch line.
4. After temporarily installing new parts, make sure the related parts fit properly.



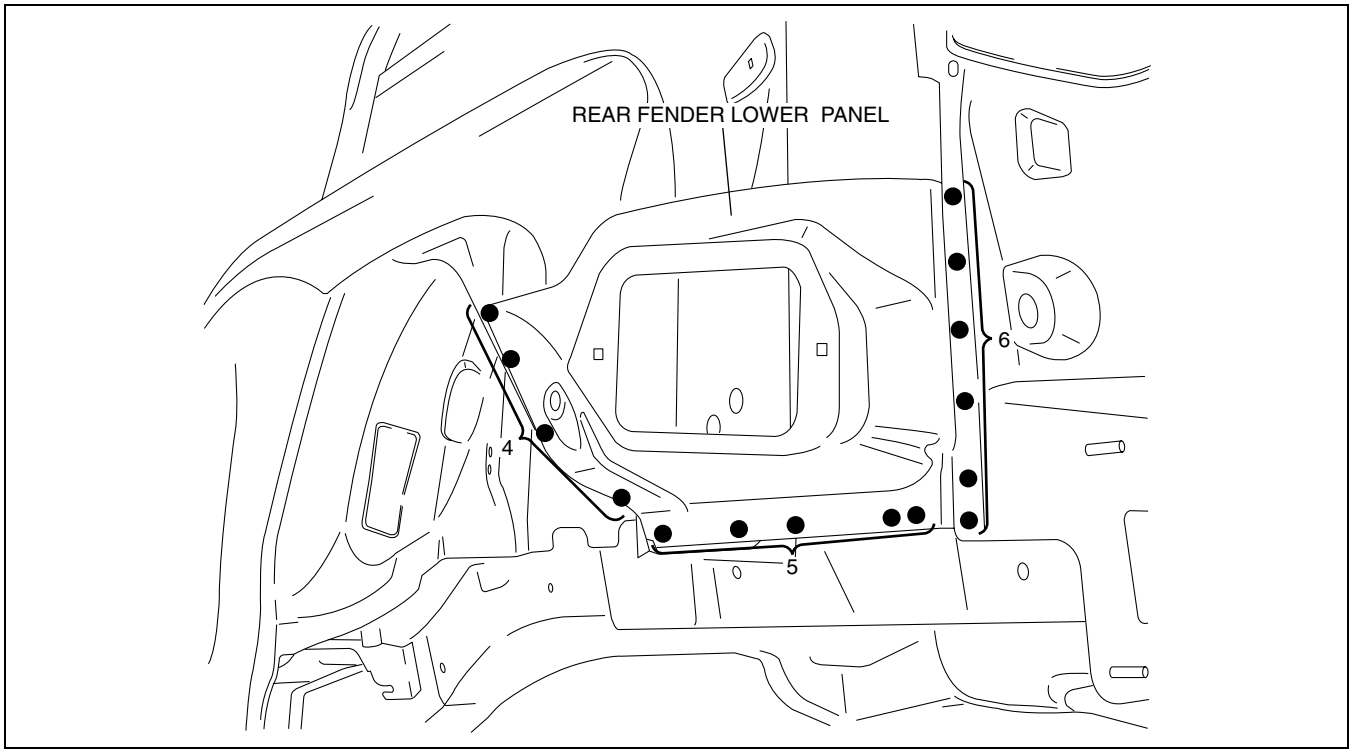
B3E0980B087

REAR FENDER LOWER PANEL REMOVAL

C3U098074100B03

4SD

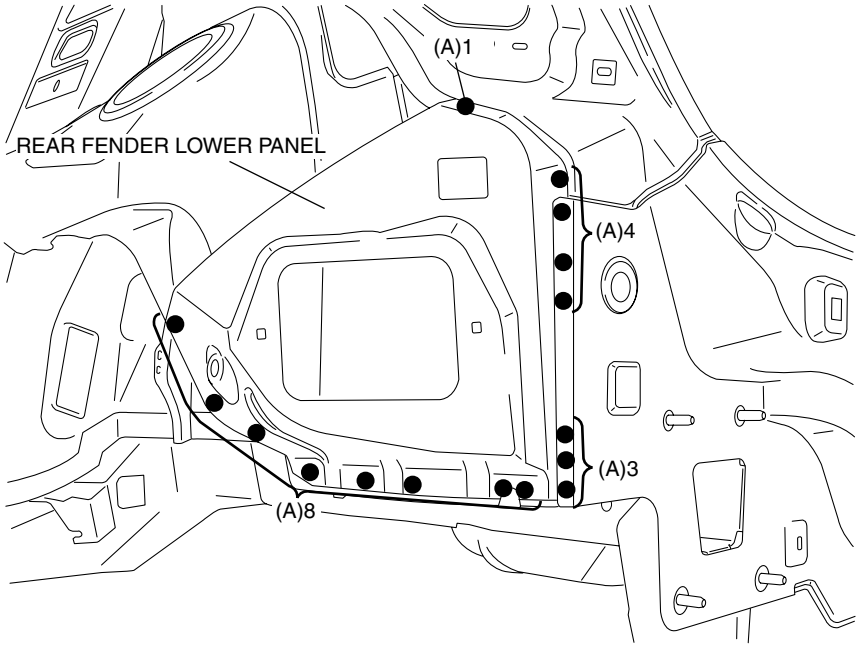
1. Remove the rear fender lower panel.

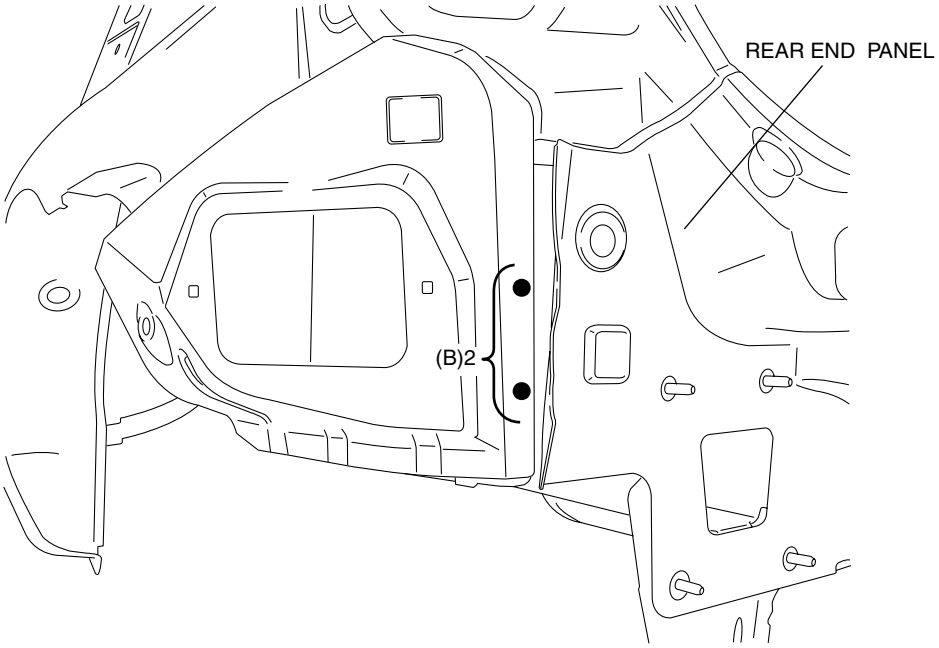


B3E0980B088

5HB

1. Drill the 16 locations indicated by (A).
2. Drill the 2 locations indicated by (B) and remove the rear fender lower panel.





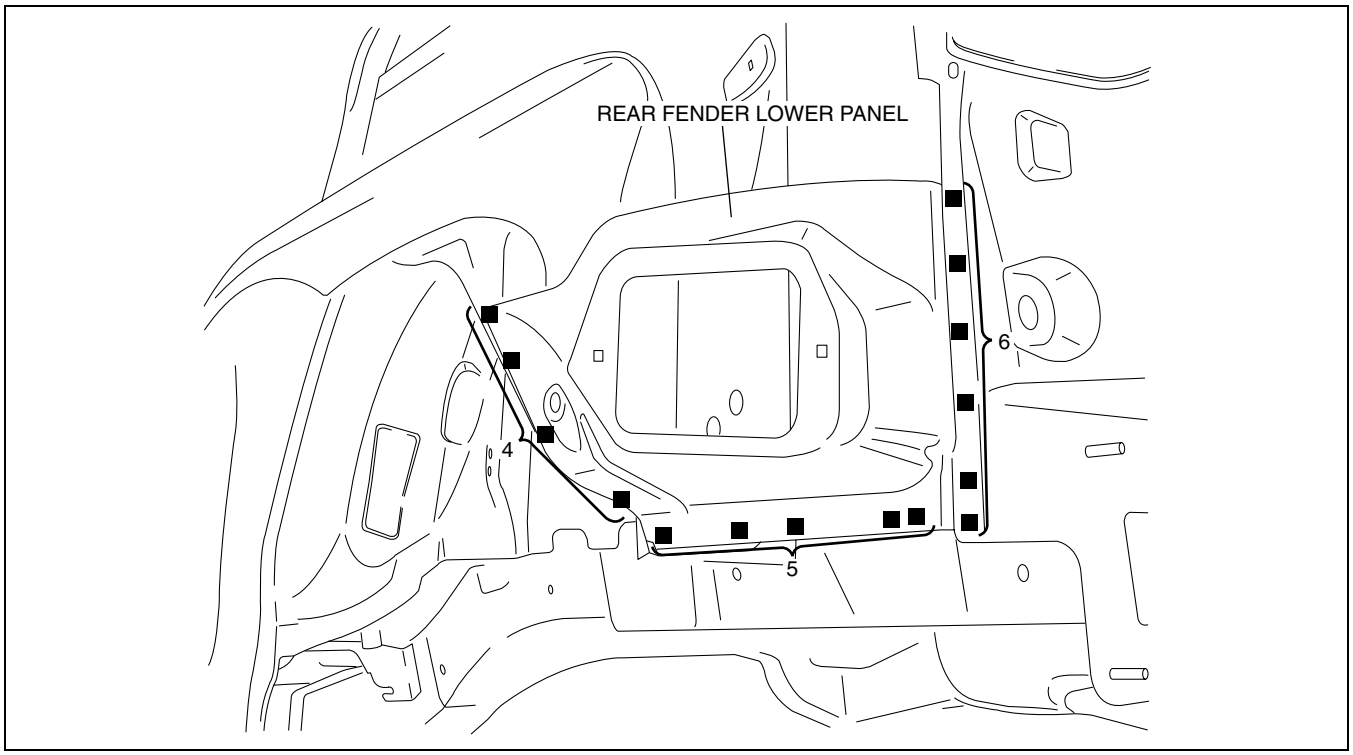
B3E0980B089

REAR FENDER LOWER PANEL INSTALLATION

C3U098074100B04

4SD

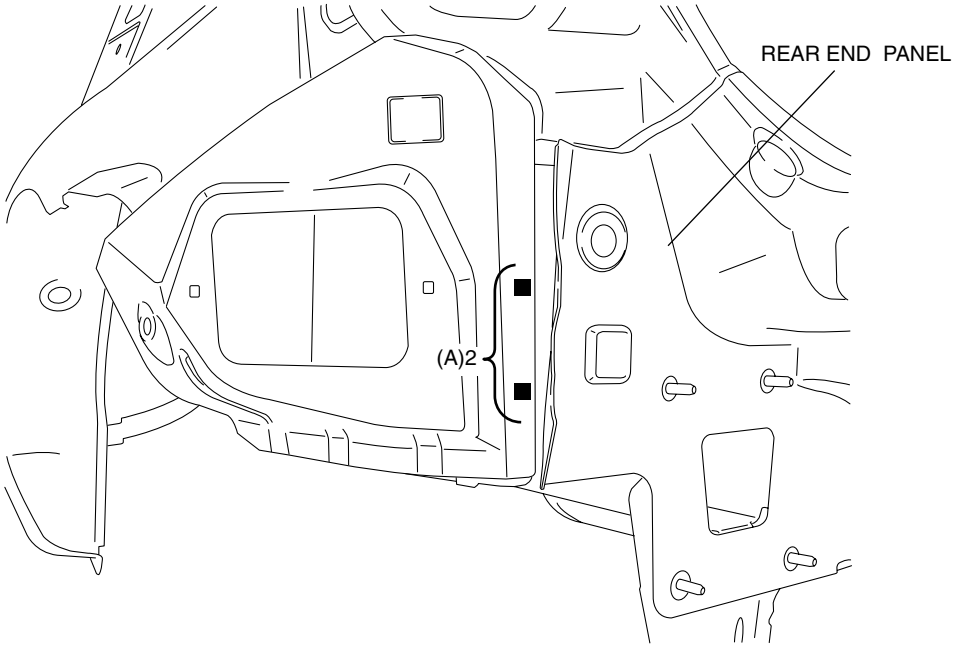
1. When installing new parts, measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.
3. After temporarily installing new parts, make sure the related parts fit properly.

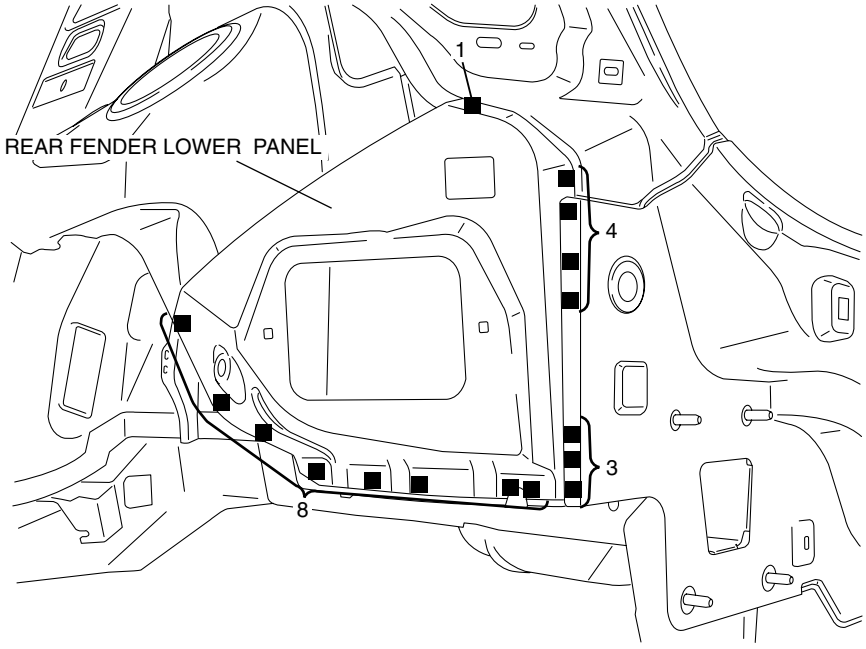


B3E0980B090

5HB

1. When installing new parts, measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.
3. Weld the 2 locations indicated by (A) and install the rear fender lower panel.
4. After temporarily installing new parts, make sure the related parts fit properly.





B3E0980B091

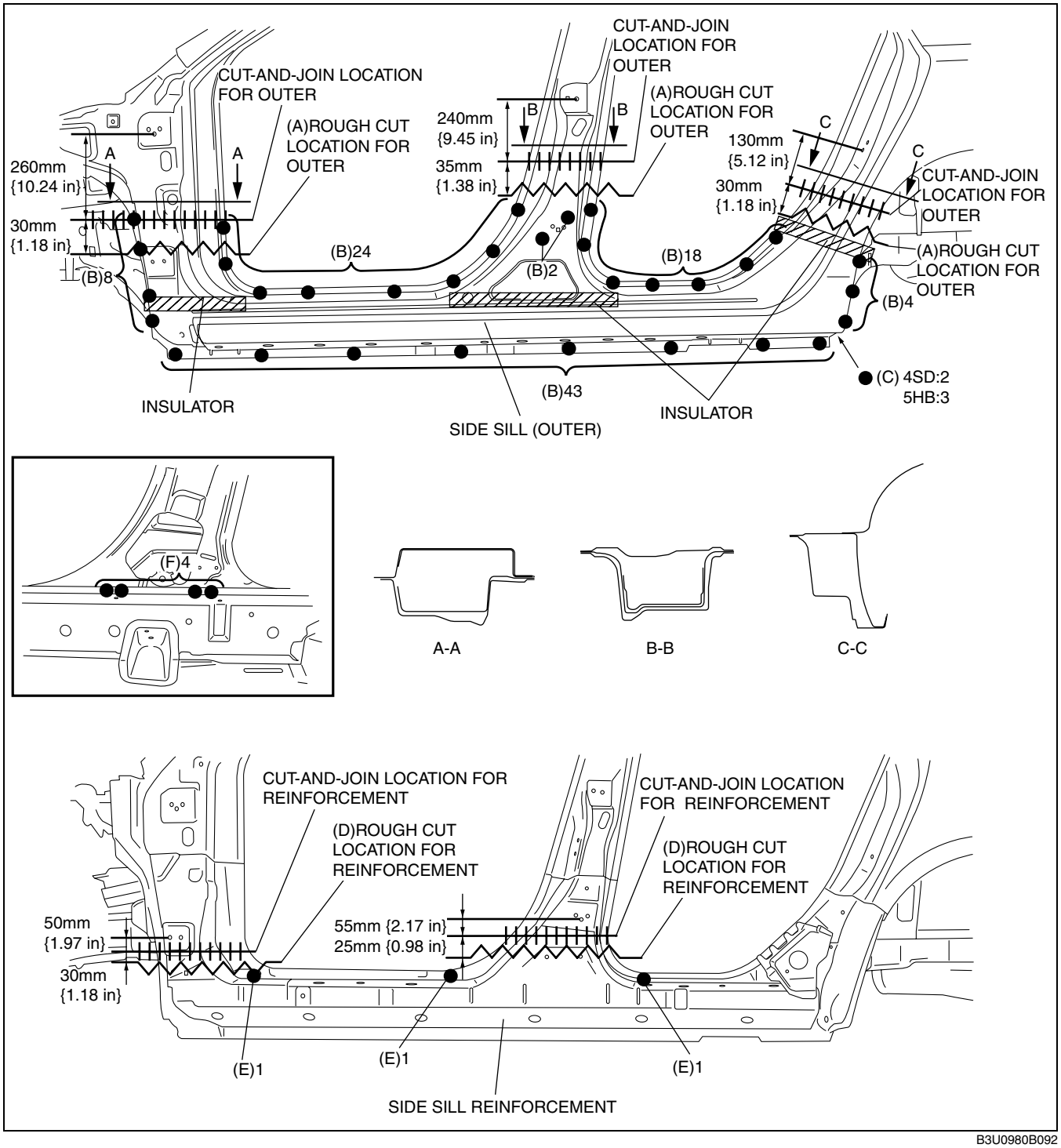
SIDE SILL PANEL REMOVAL

C3U098070270B01

1. Rough cut area (A), drill the 99 locations indicated by (B), the 2 locations (4SD) or 3 locations (5HB) indicated by (C), and then remove the side sill (outer).

Caution
- **Avoid cutting with a blowtorch or similar tools as the insulator (shaded area) is flammable.**

2. Rough cut area (D) and drill the 3 locations indicated by (E).
3. Drill the 4 locations indicated by (F) from the interior and remove the side sill reinforcement.



B3U0980B092

SIDE SILL PANEL INSTALLATION

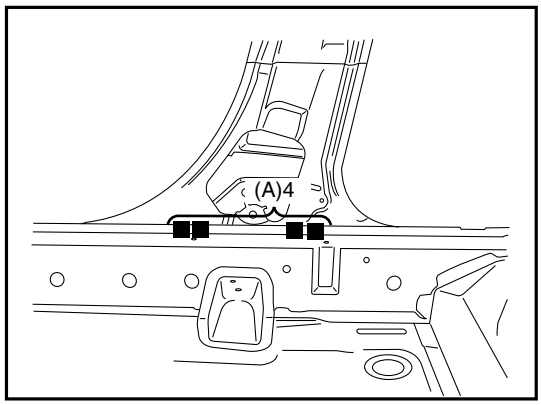
C3U098070270B02

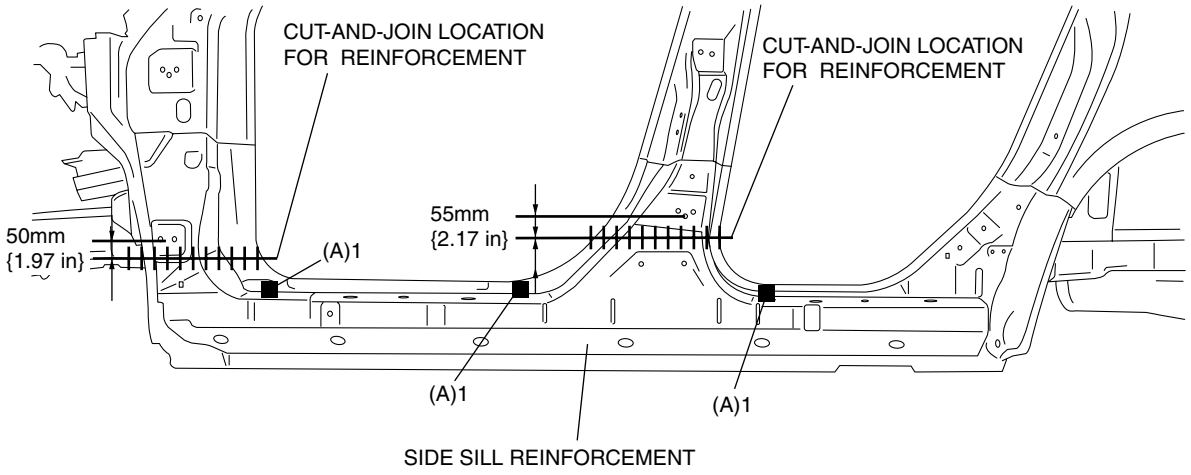
1. When joining and cutting the new and existing parts, trial fit the new part in position, and then measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.

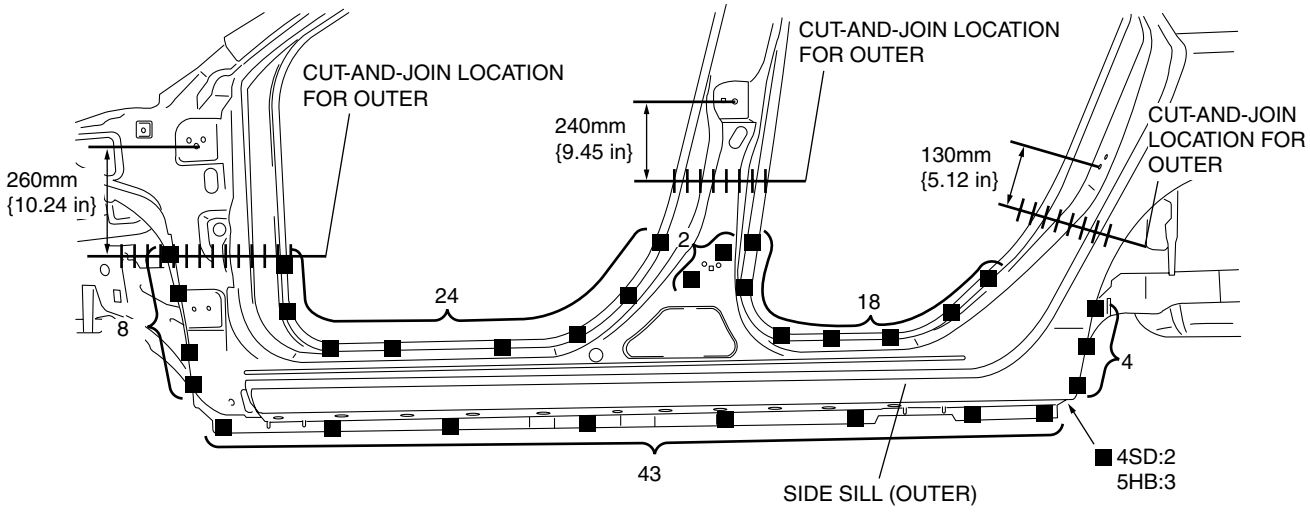
Note

- In areas where the outer, reinforcement, inner, and other parts are in 3-4 layers, drill holes for plug welds in all but the innermost panel.

3. Weld the 7 locations indicated by (A) and temporarily install the side sill reinforcement.
4. After temporarily installing new parts, make sure the related parts fit properly.







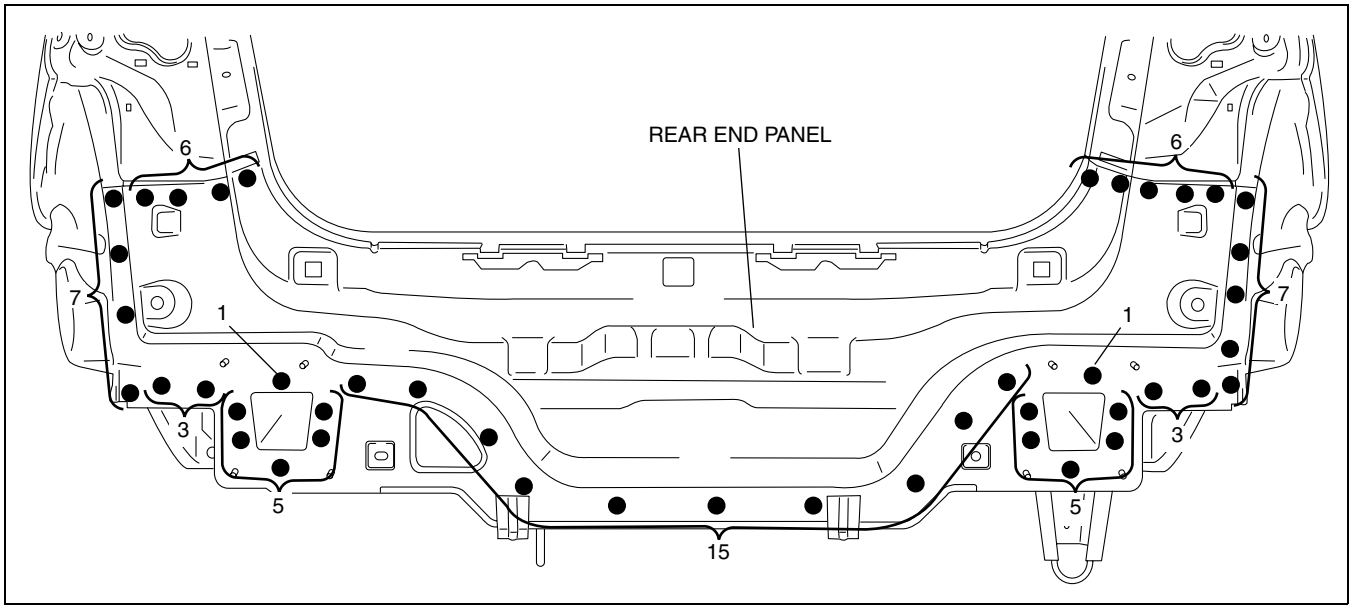
B3E0980B093

REAR END PANEL REMOVAL

C3U098070750B01

4SD

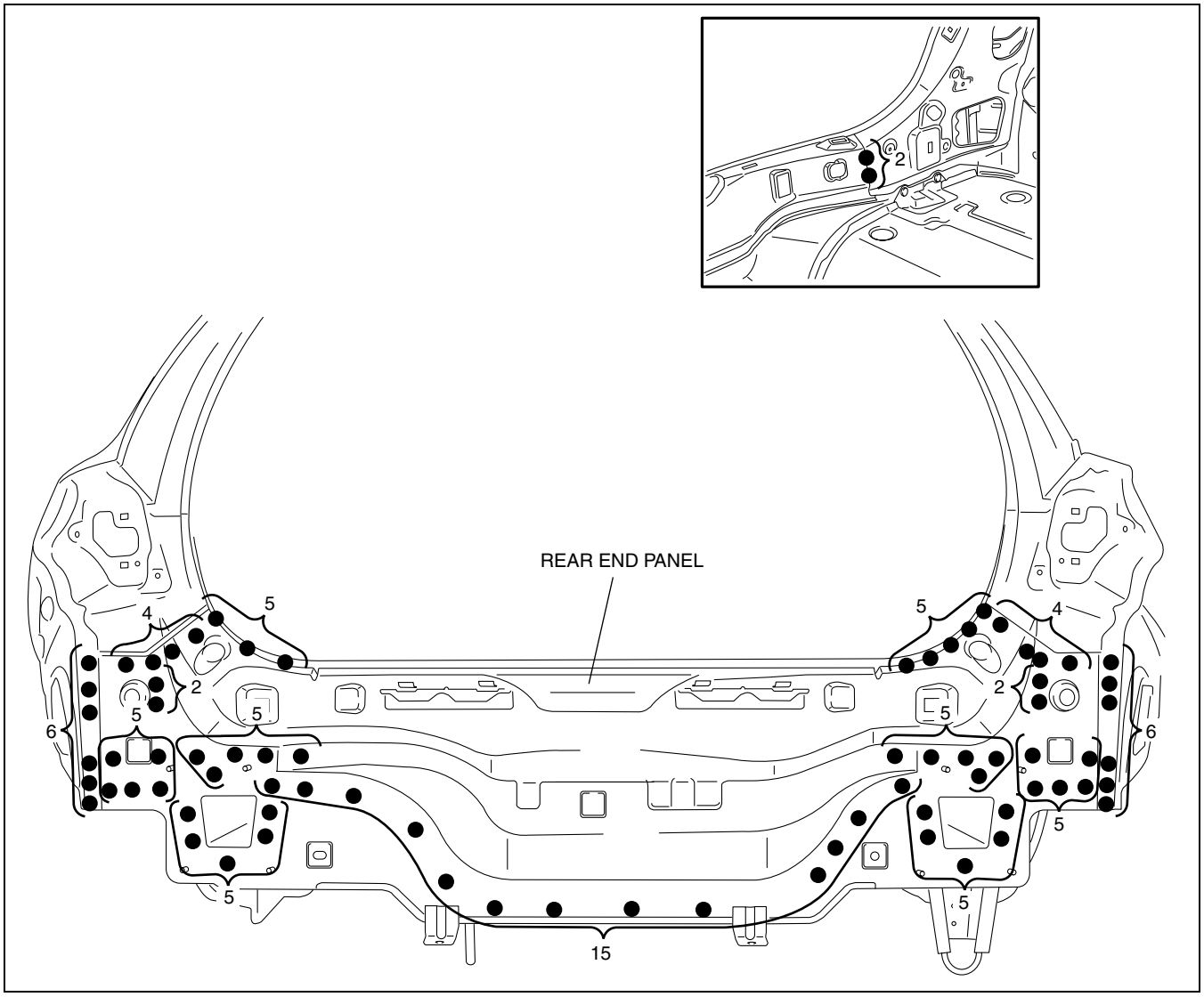
1. Remove the rear end panel.



B3E0980B094

5HB

1. Remove the rear end panel.



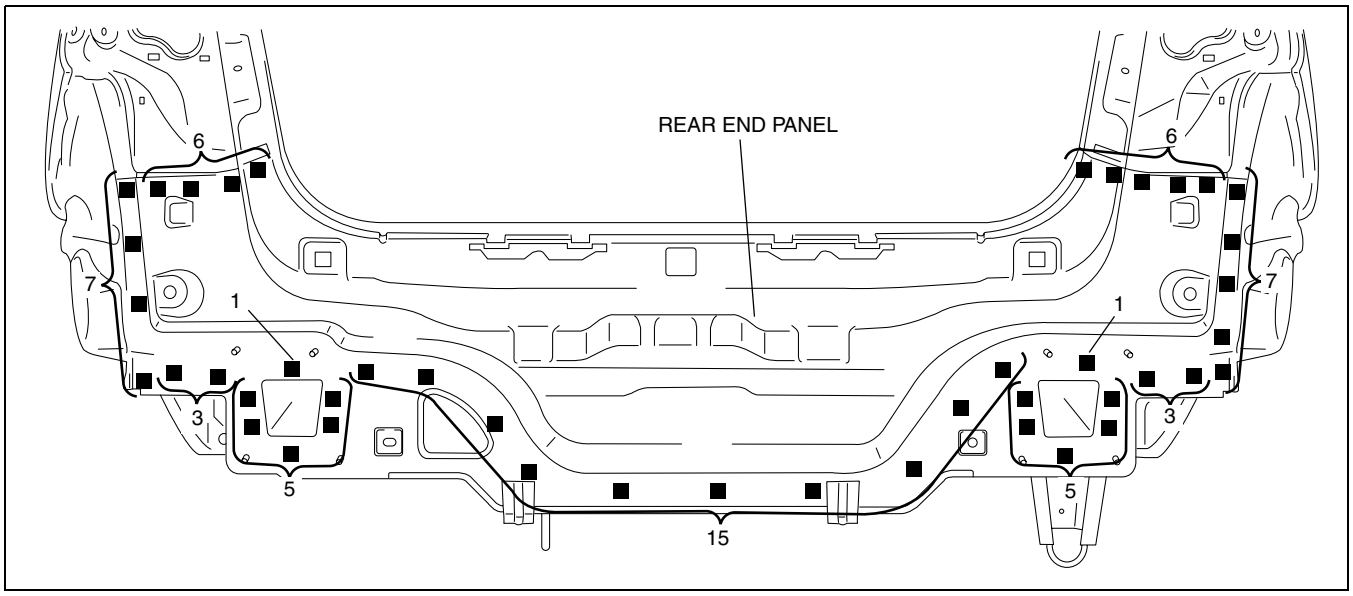
B3E0980B095

REAR END PANEL INSTALLATION

C3U098070750B02

4SD

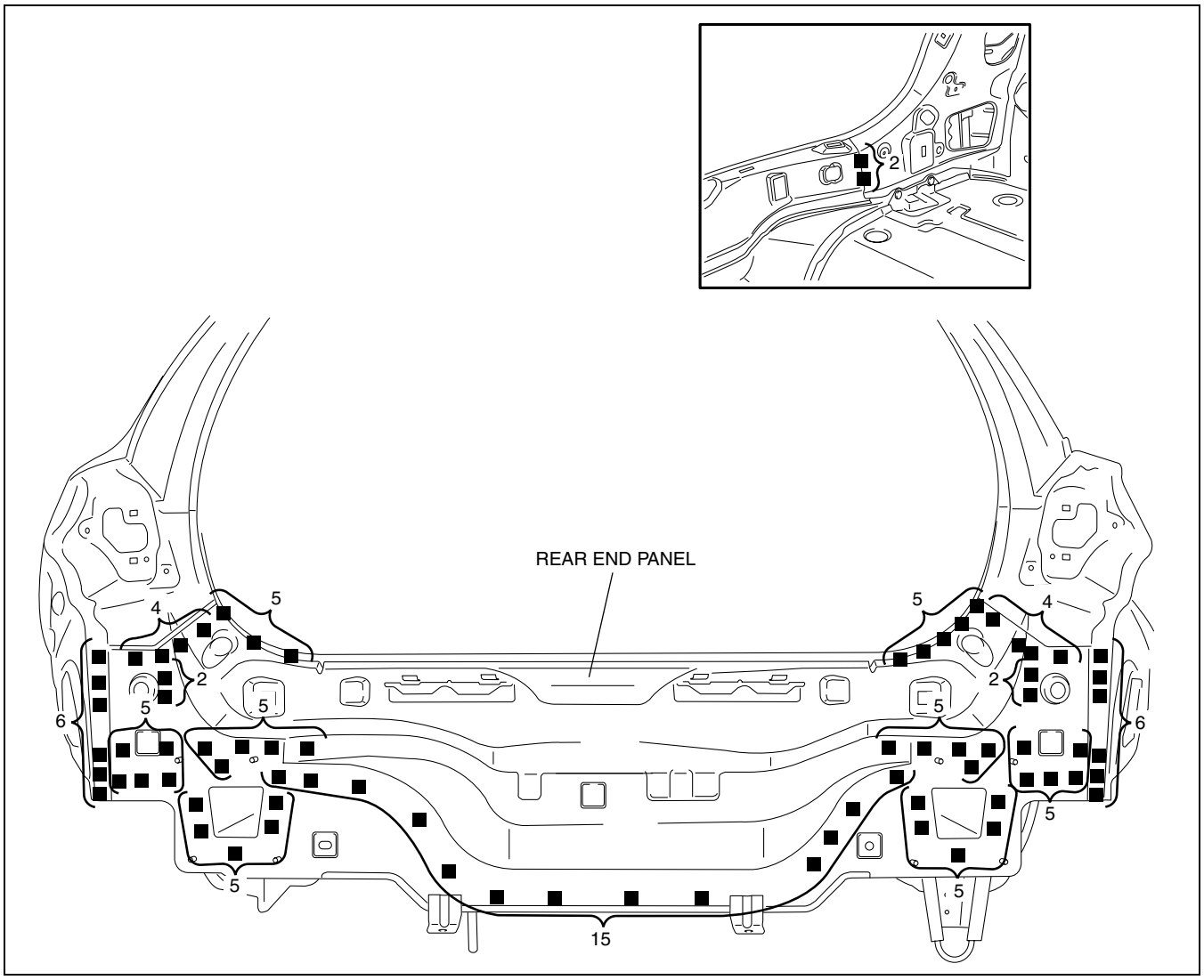
1. When installing new parts, measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.
3. After temporarily installing new parts, make sure the related parts fit properly.



B3E0980B096

5HB

1. When installing new parts, measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.
3. After temporarily installing new parts, make sure the related parts fit properly.



B3E0980B097

REAR FENDER RAIN RAIL AND CORNER PLATE REMOVAL

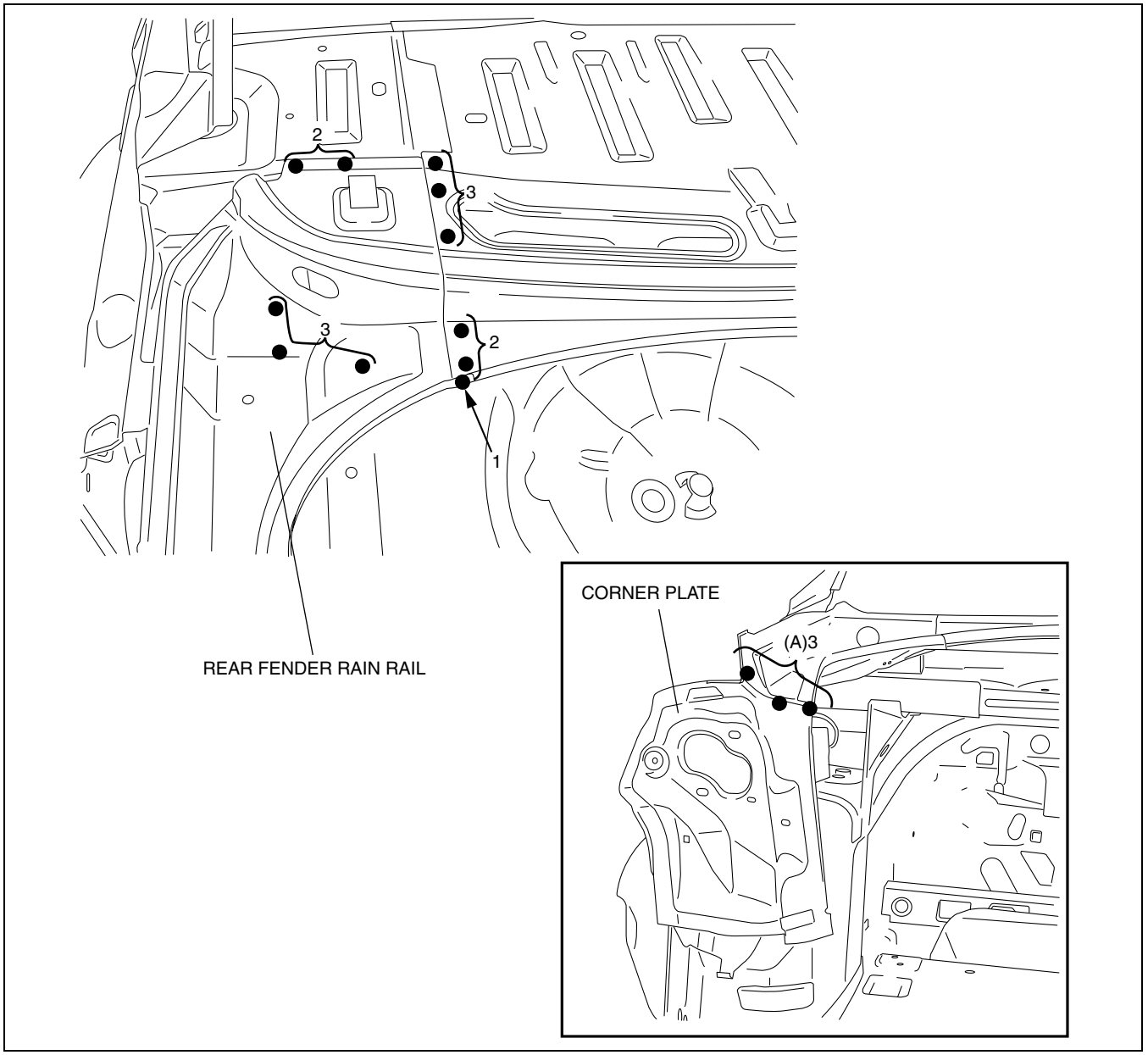
C3U098070440B01

4SD

1. Remove the rear fender rain rail and corner plate.

Note

- When removing the rear fender rain rail and the corner plate separately, drill the 3 locations indicated by (A).



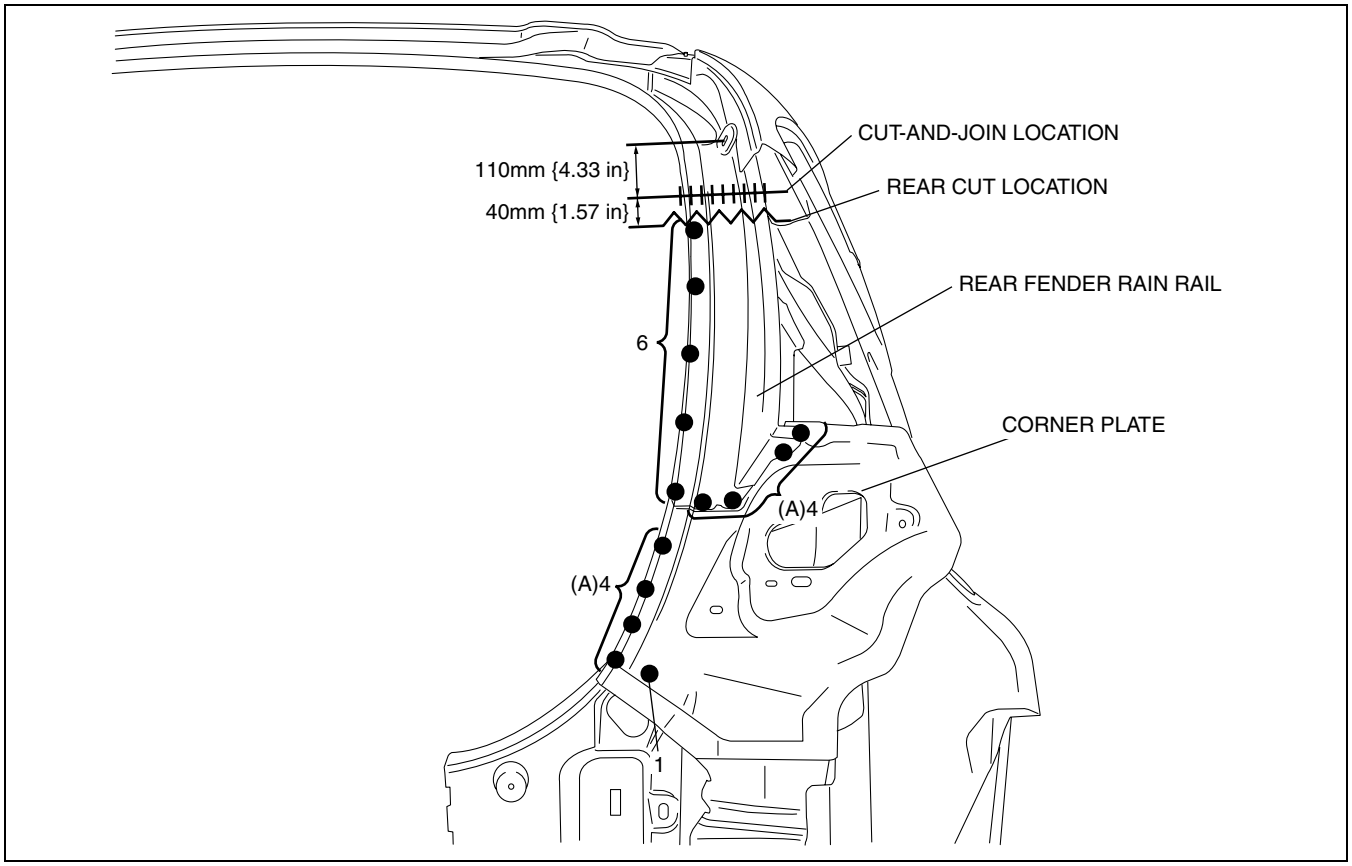
B3E0980B098

5HB

1. Remove the rear fender rain rail and corner plate.

Note

- When removing the rear fender rain rail and the corner plate separately, drill the 8 locations indicated by (A).



B3E0980B099

REAR FENDER RAIN RAIL AND CORNER PLATE INSTALLATION

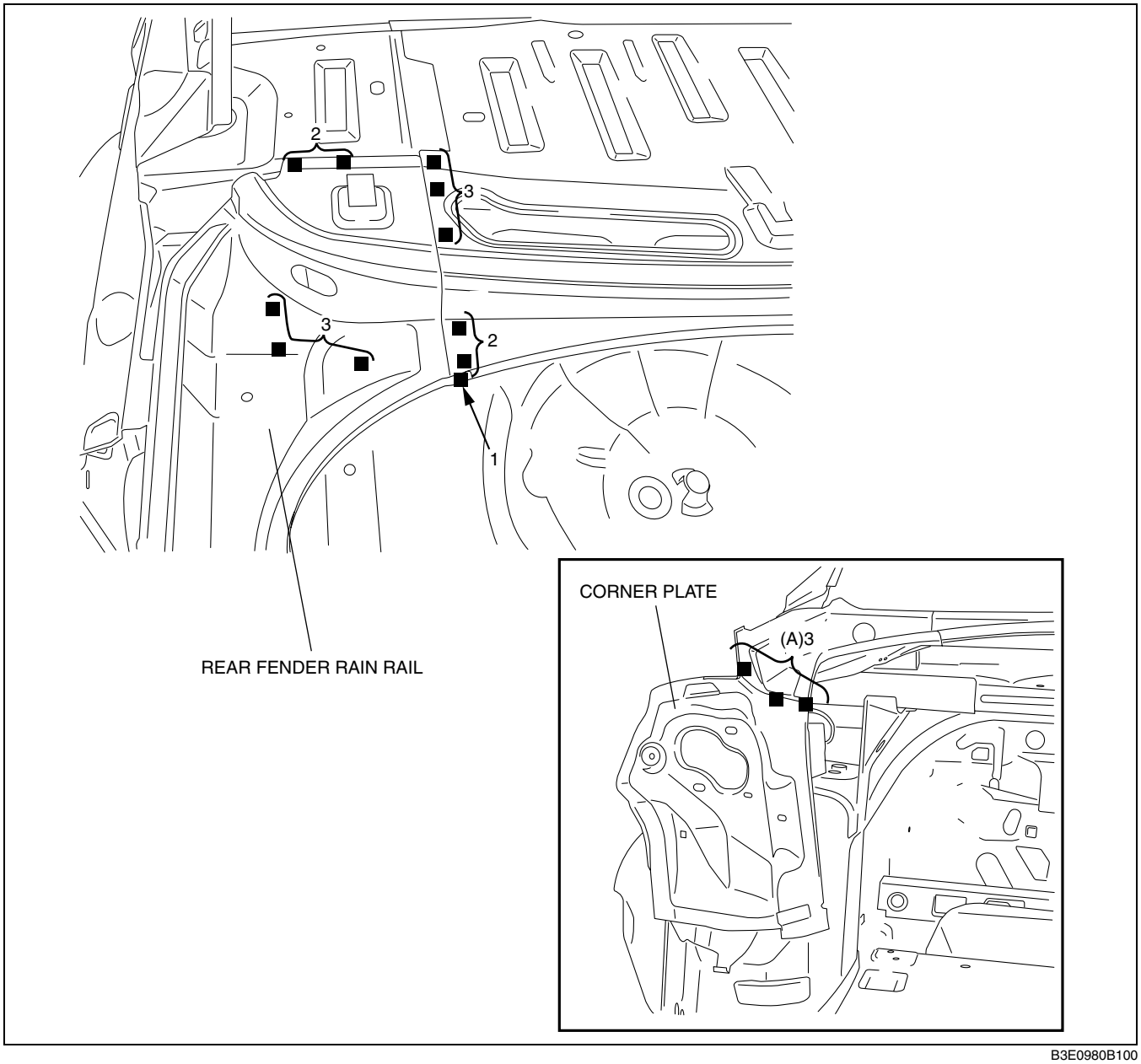
C3U098070440B02

4SD

1. When installing new parts, measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.
3. After temporarily installing new parts, make sure the related parts fit properly.

Note

- When replacing the rear fender rain rail and corner plate separately, weld the 3 locations indicated by (A).



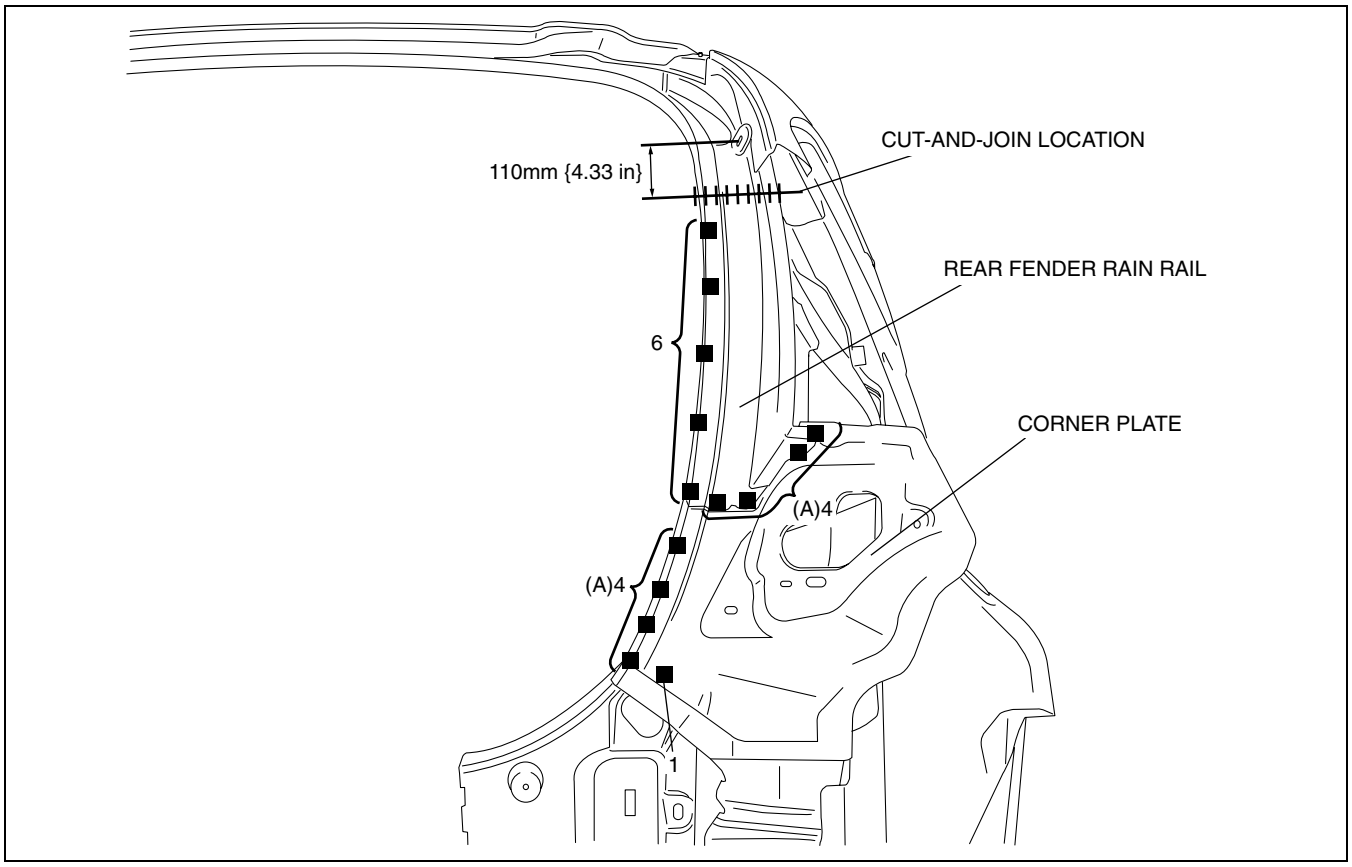
B3E0980B100

5HB

1. When installing new parts, measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.
3. After temporarily installing new parts, make sure the related parts fit properly.

Note

- When replacing the rear fender rain rail and corner plate separately, weld the 8 locations indicated by (A).



B3E0980B101

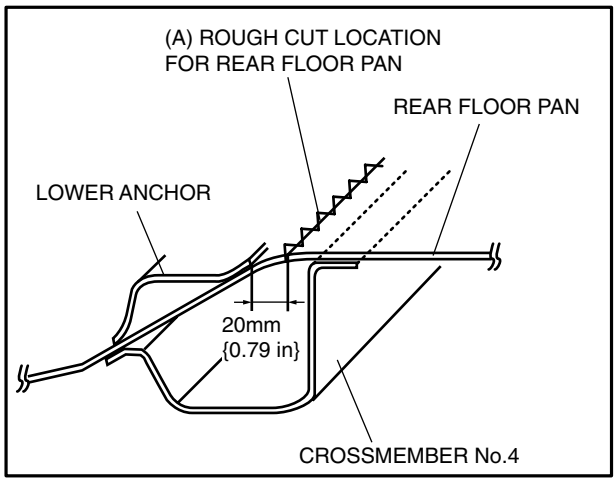
REAR FLOOR PAN REMOVAL

C3U098053750B01

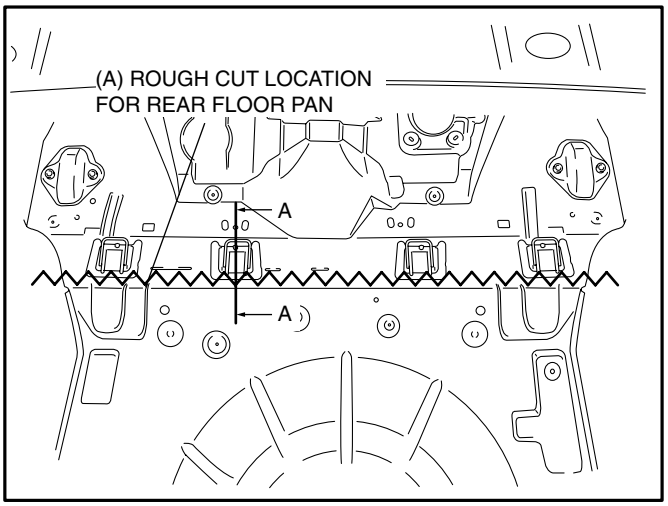
1. Rough cut area (A).

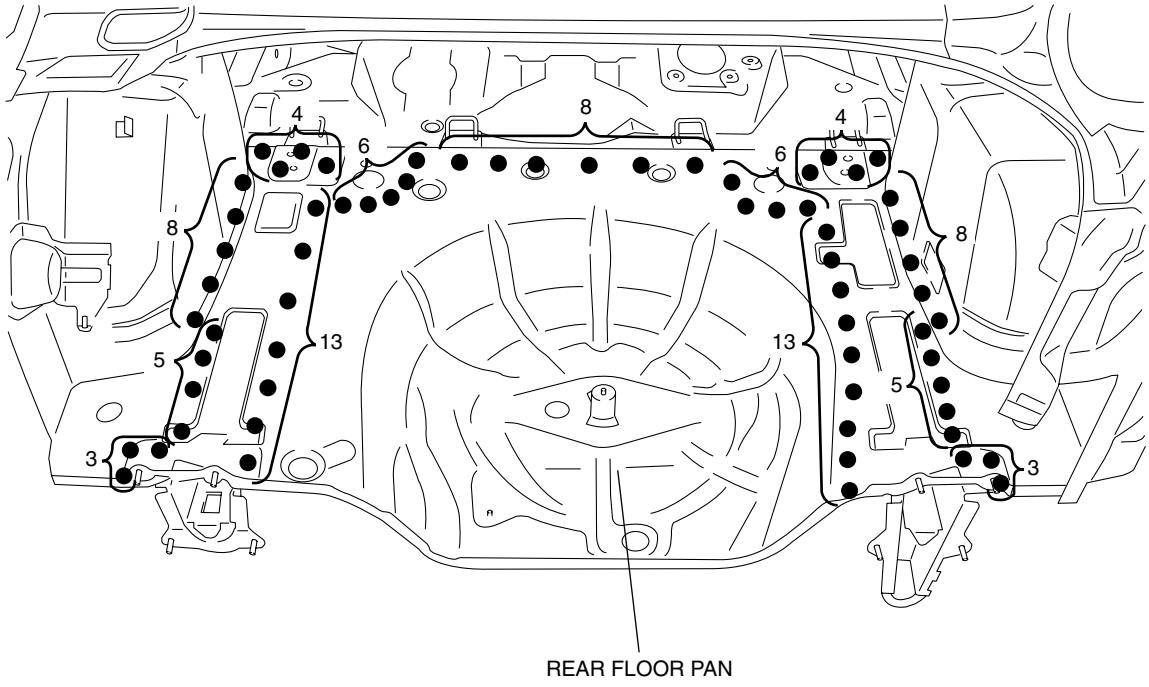
Caution
- **When rough cutting area (A), cut 20mm {0.79 in} away from the flange (towards rear) at the rear of the lower anchor.**

2. Remove the rear floor pan.

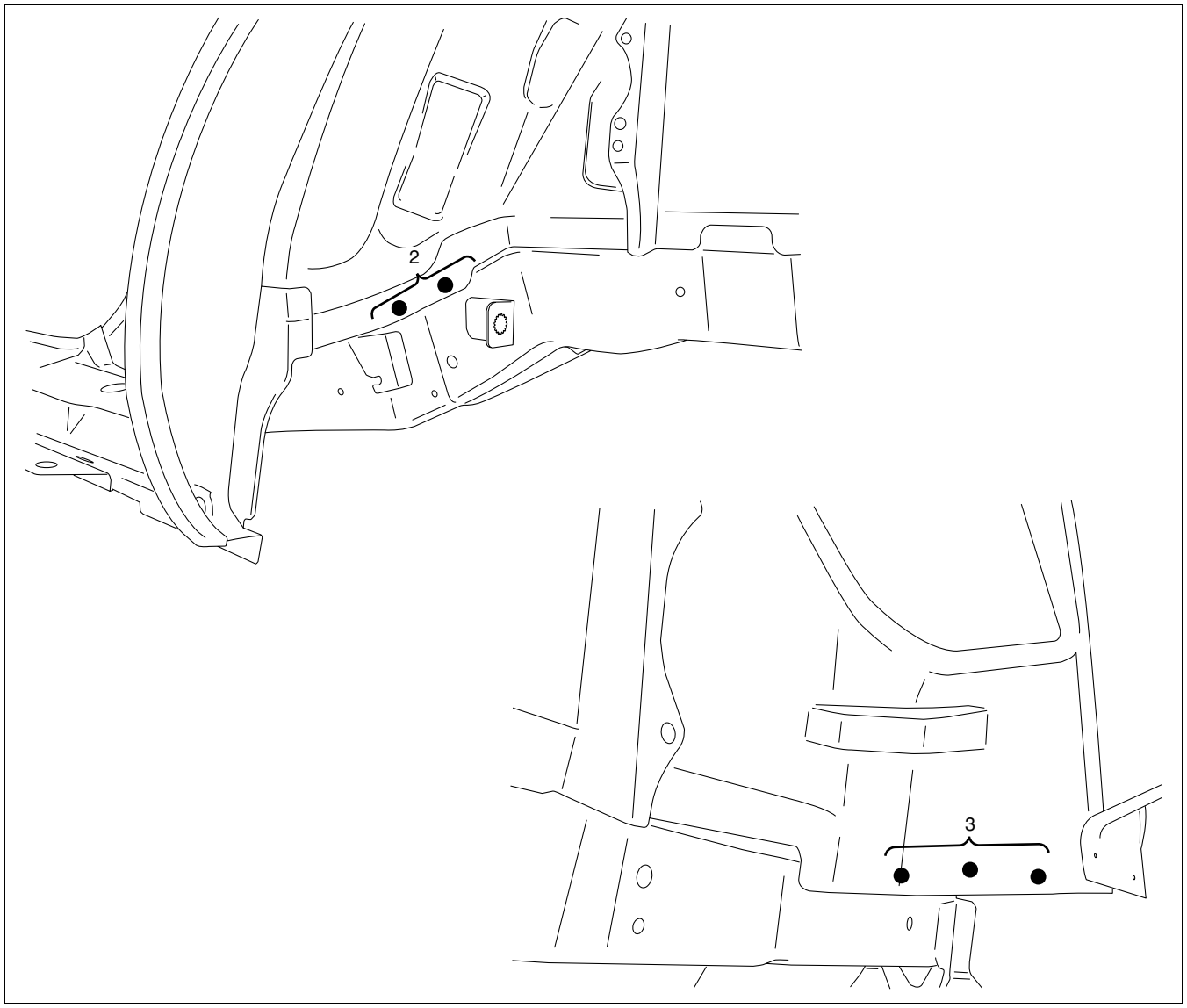


A-A





B3E0980B102



B3E0980B103

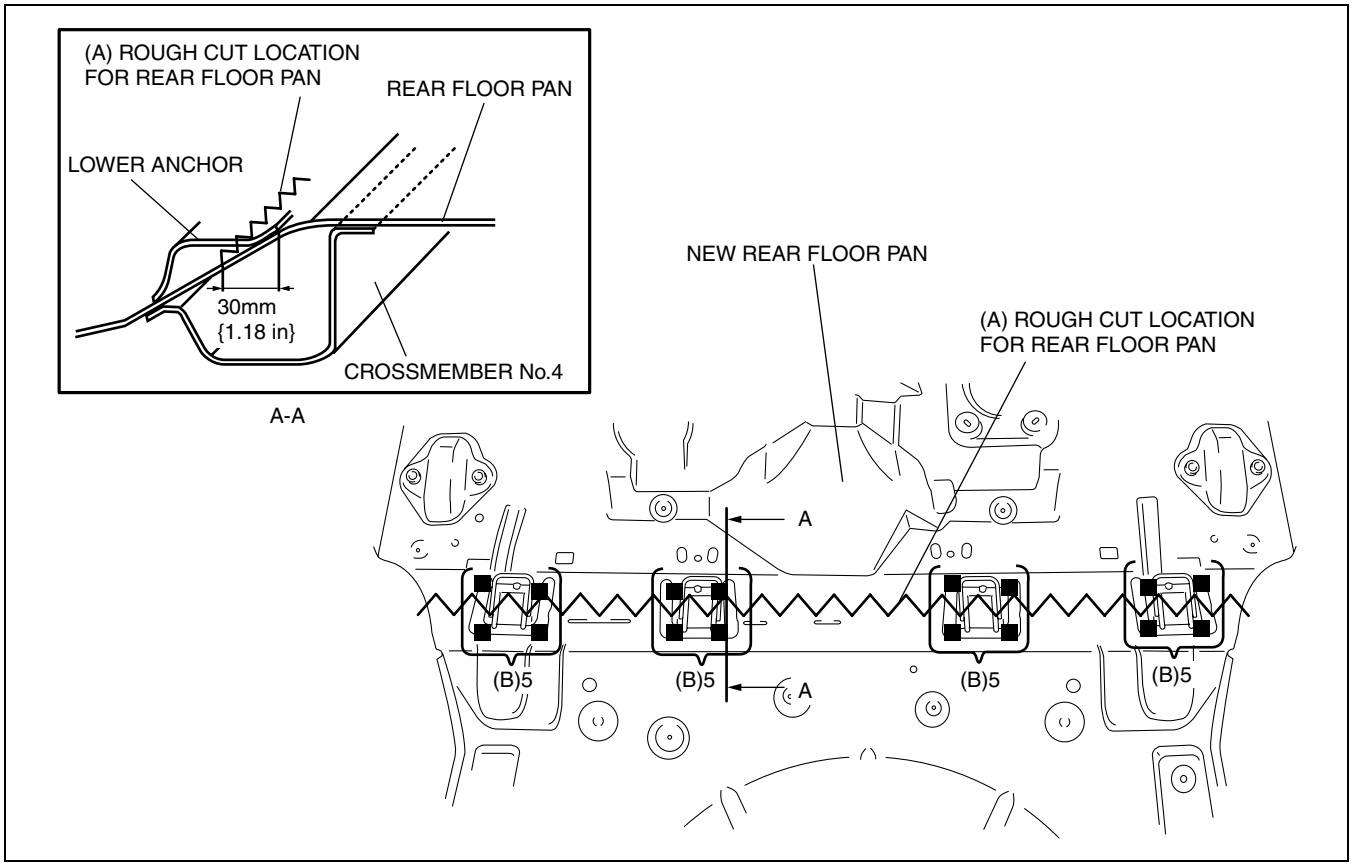
REAR FLOOR PAN INSTALLATION

C3U098053750B02

1. To prepare for installation, cut area (A) on the new rear floor pan, drill the 20 locations indicated by (B) and then remove the lower anchor.

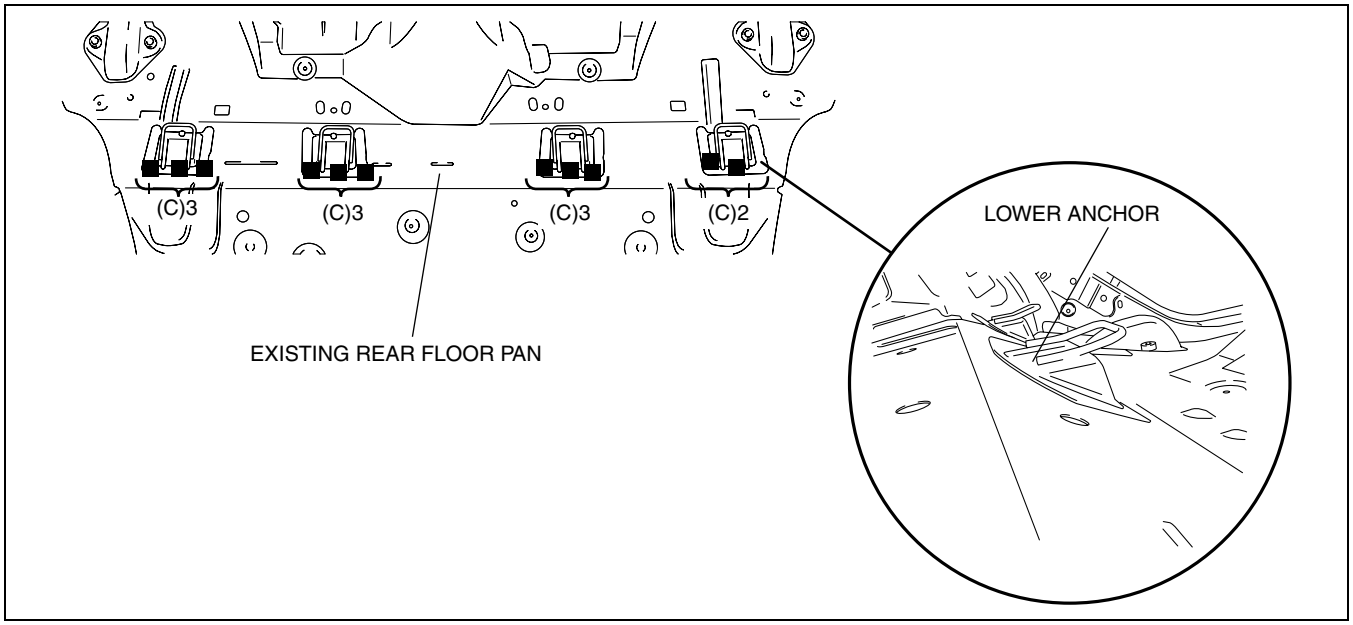
Caution

- **When rough cutting area (A), cut 30 mm {1.18 in} away from the flange (towards front) at the rear of the lower anchor.**



B3E0980B104

2. Drill the 11 locations indicated by (A).
3. Separate the lower anchor where joined using a chisel or similar tool and bend upwards to facilitate installation.

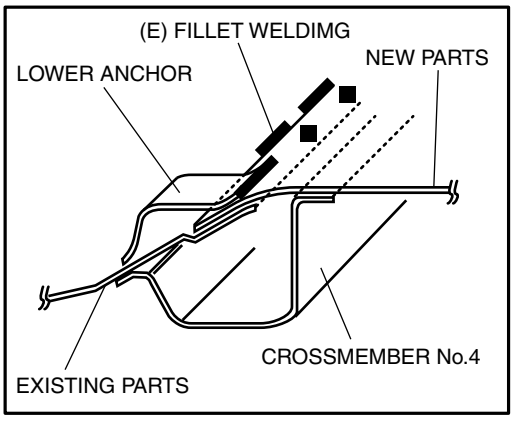


B3E0980B105

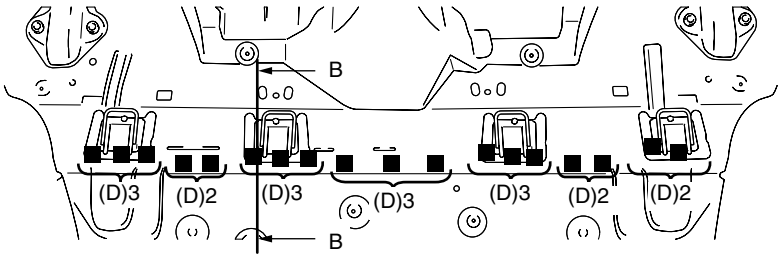
4. Apply spot sealer to the areas where both the overlapping ends of the new and existing parts will be welded. Adhere the sections to be welded, and plug weld in 18 locations indicated by (D). Fillet weld along the seams of the lower anchor, and new and existing parts at the locations indicated by (E).

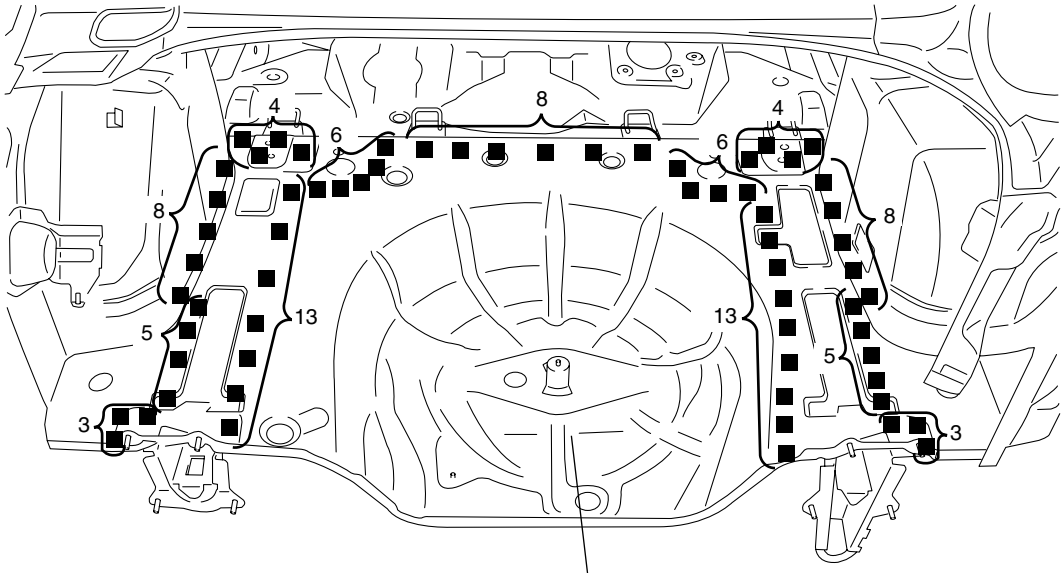
Note
- Create a flange with flanging seal where new and existing parts are joined.

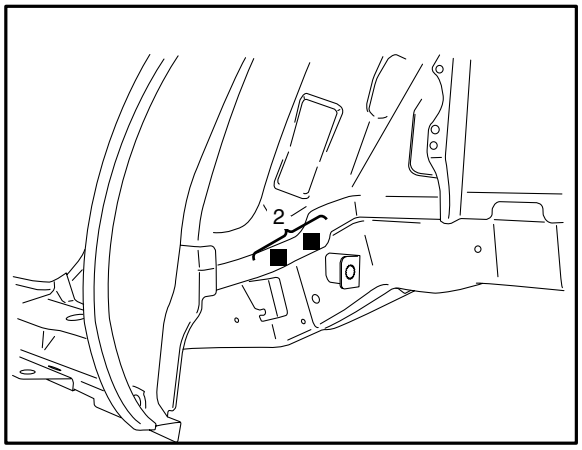
5. Weld the remaining weld locations and install the rear floor pan.

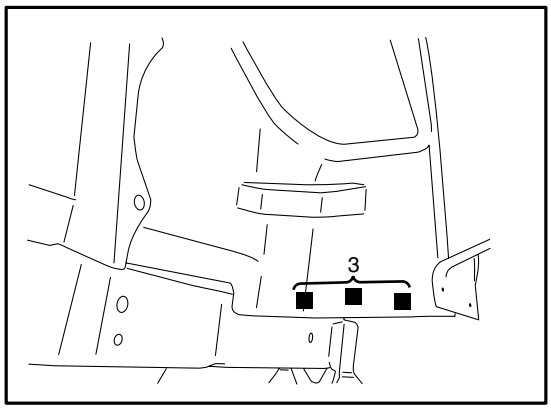


B-B







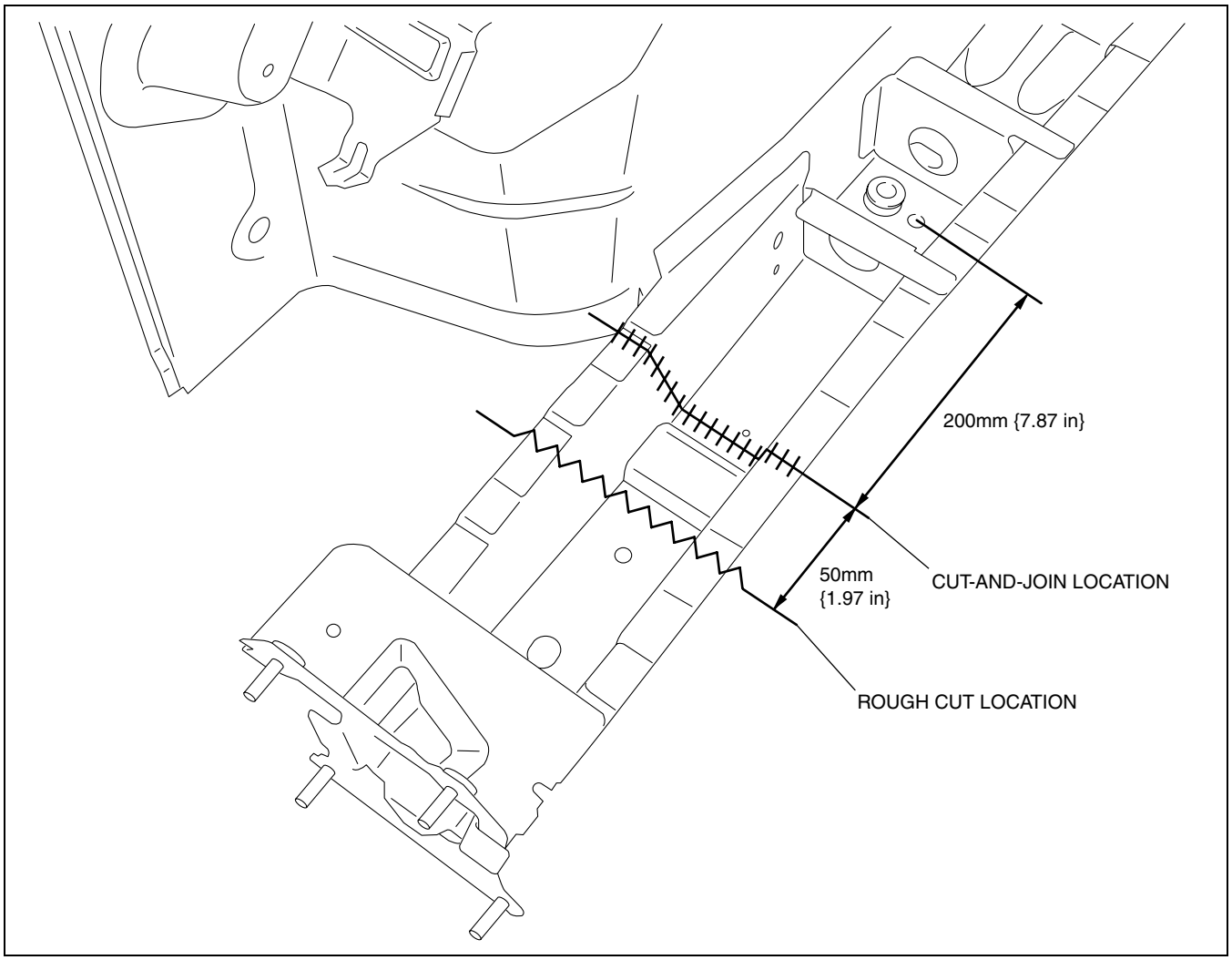


B3E0980B106

REAR SIDE FRAME (PARTIAL CUTTING) REMOVAL

C3U098053810B01

1. Rough cut and remove the damaged part of the rear side frame.



B3E0980B107

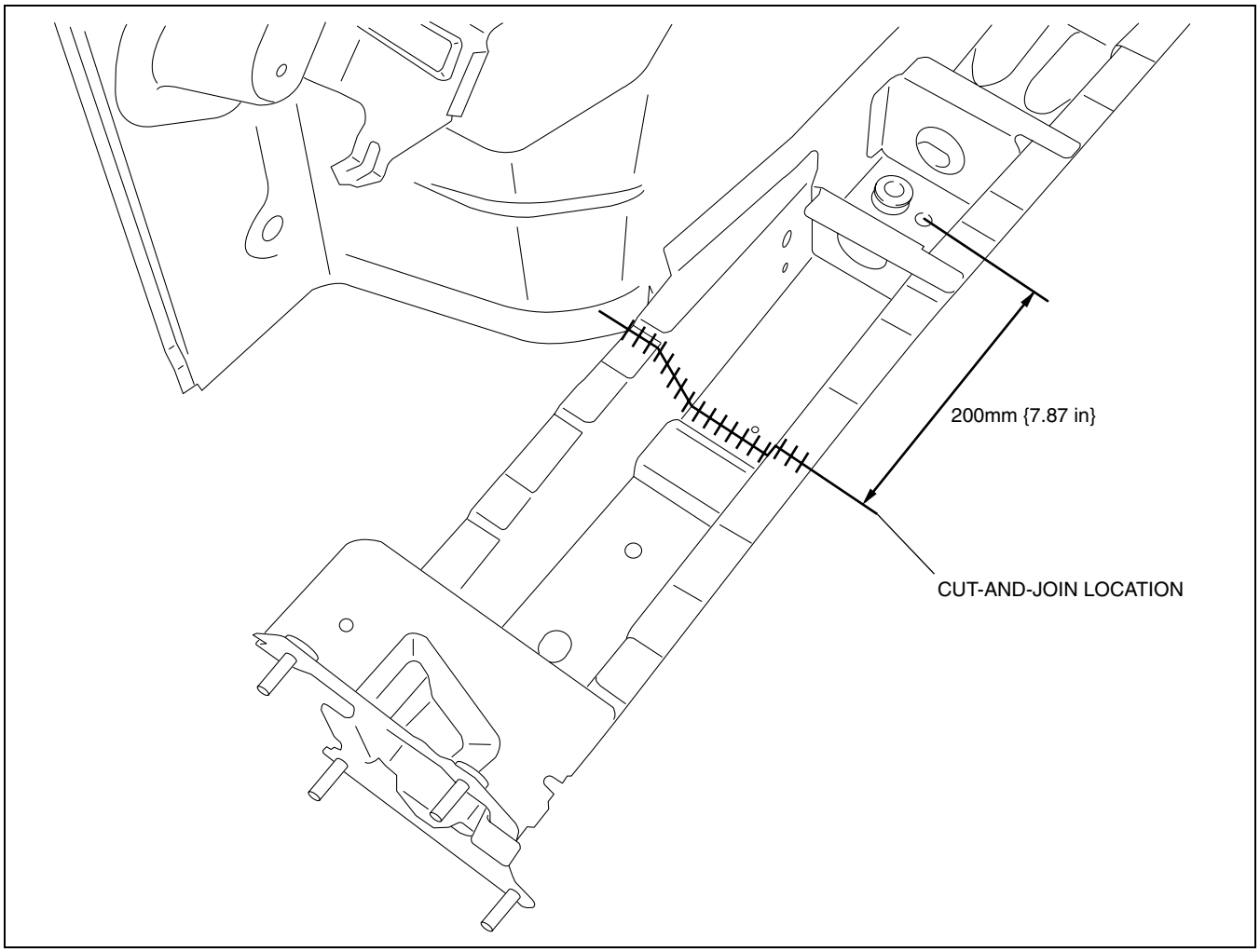
REAR SIDE FRAME (PARTIAL CUTTING) INSTALLATION

C3U098053810B02

1. Cut the new and existing parts at the cut-and-join location, and bevel the parts.
2. To cut-and-join the new part, cut at the locations indicated in the figure below and bevel the cut-and-join locations of the new parts.
3. When installing the new parts, trial-fit new and existing parts, and then measure and adjust the body to conform with standard dimensions.
4. After temporarily installing new parts, make sure the related parts fit properly.

Caution

- **The cut-and-join area indicates the maximum size range of the installation position.**



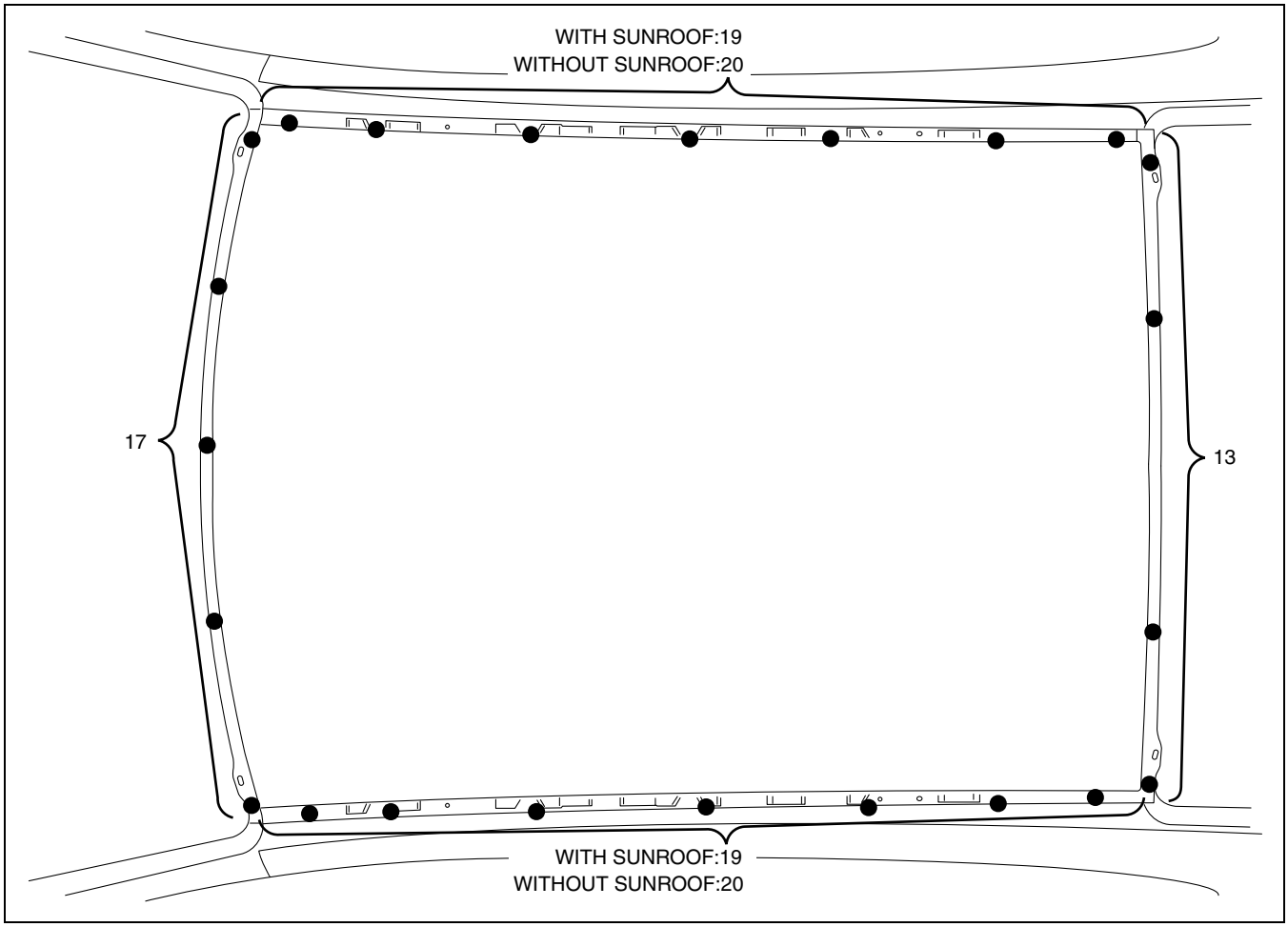
B3E0980B108

ROOF PANEL REMOVAL

C3U098070600B01

4SD

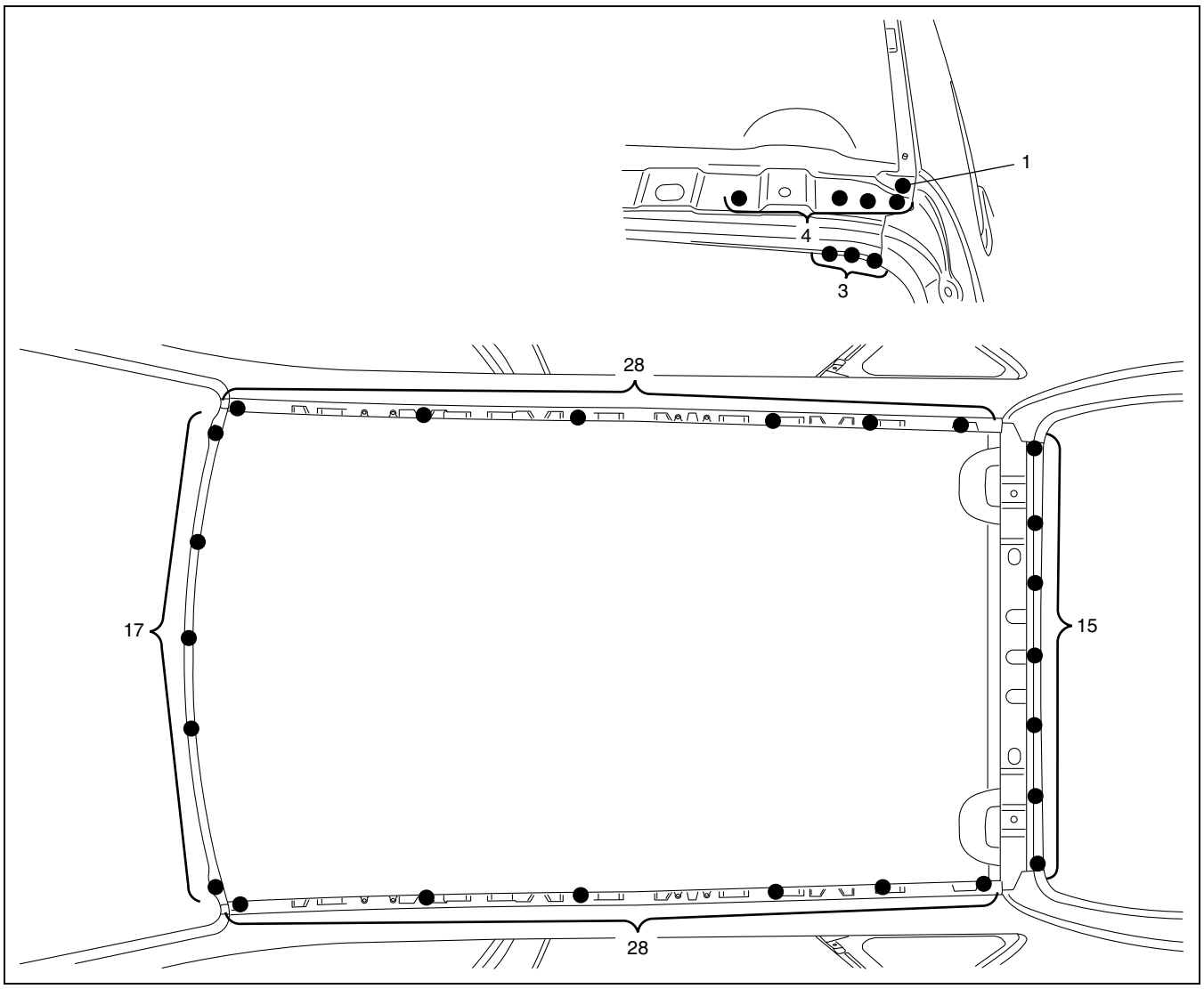
1. Remove the roof panel.



B3E0980B109

5HB

1. Remove the roof panel.



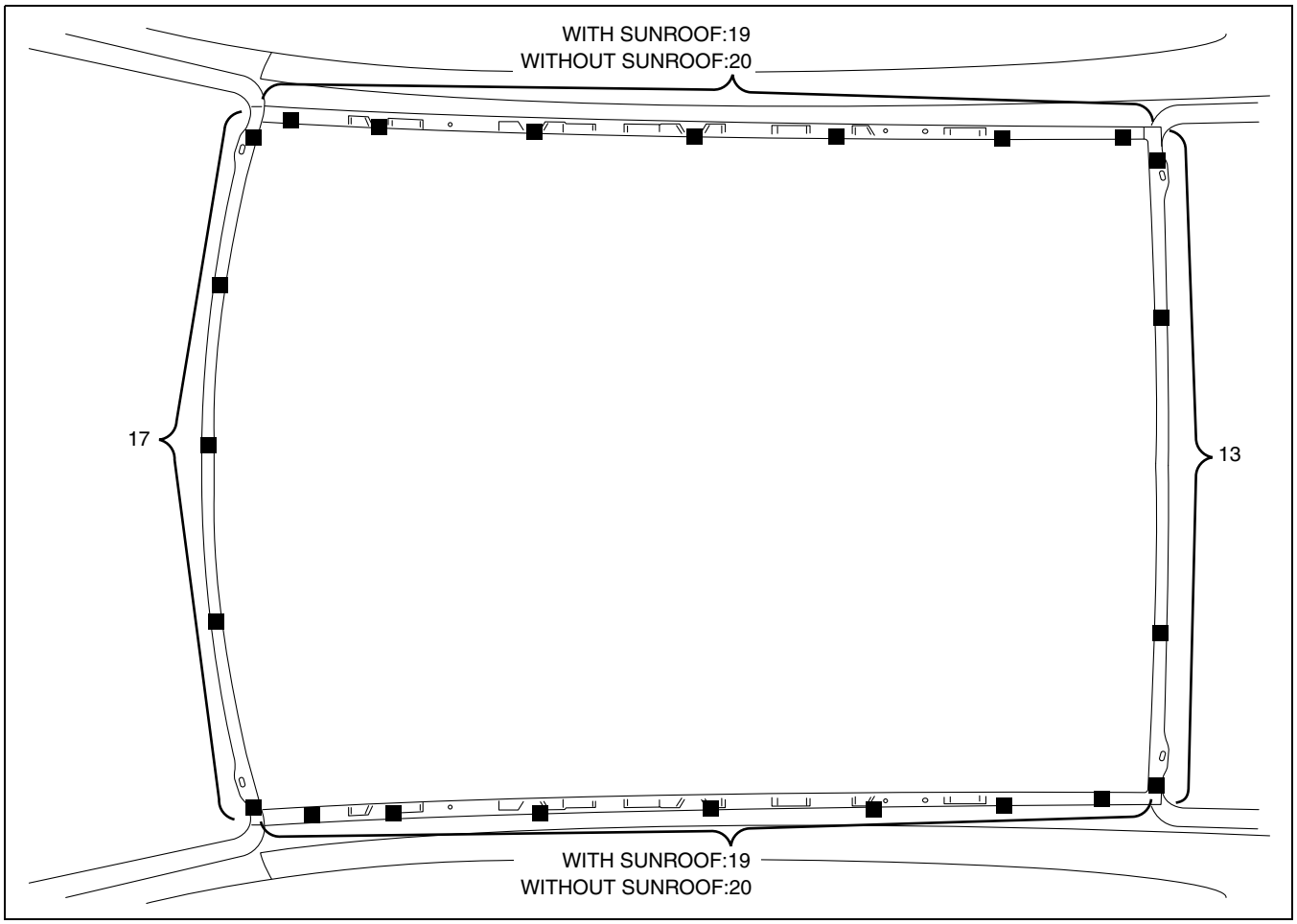
B3E0980B110

ROOF PANEL INSTALLATION

C3U098070600B02

4SD

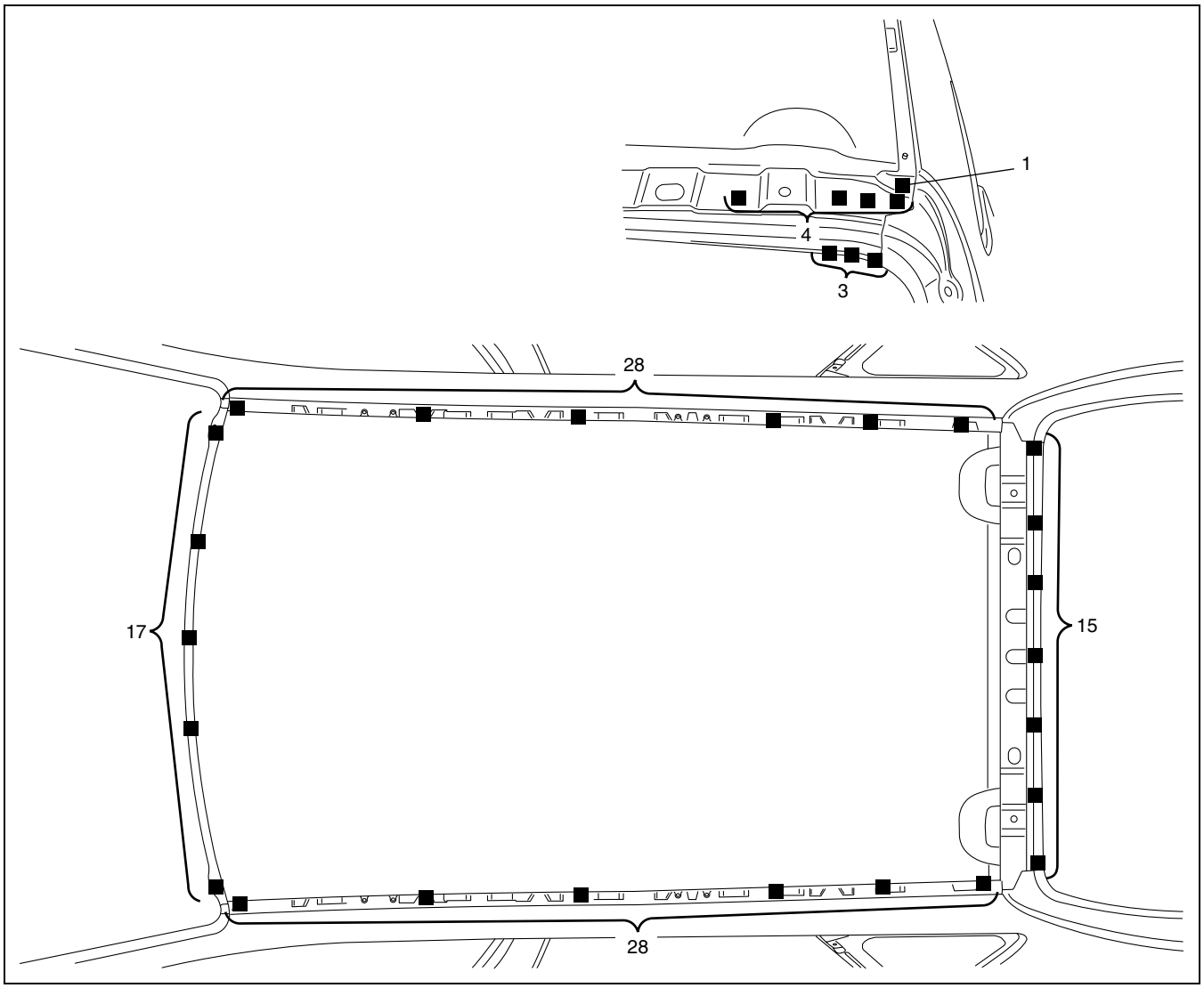
1. When installing new parts, measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.
3. After temporarily installing new parts, make sure the related parts fit properly.



B3E0980B111

5HB

1. When installing new parts, measure and adjust the body as necessary to conform with standard dimensions.
2. Drill holes for plug welds before installing new parts.
3. After temporarily installing new parts, make sure the related parts fit properly.



B3E0980B112

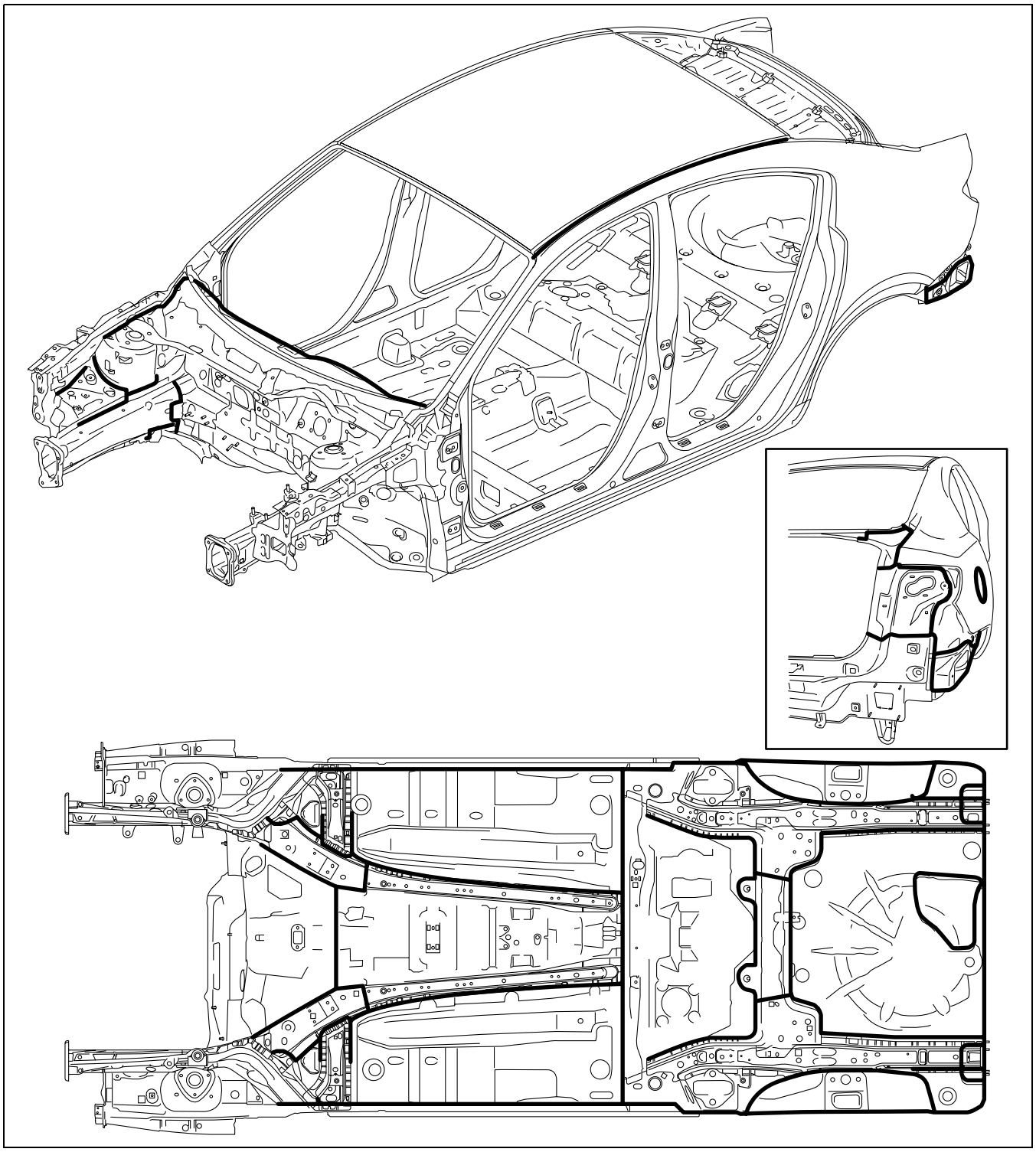
09–80C BODY STRUCTURE [WATER-PROOF AND RUST PREVENTIVE]

BODY SEALING

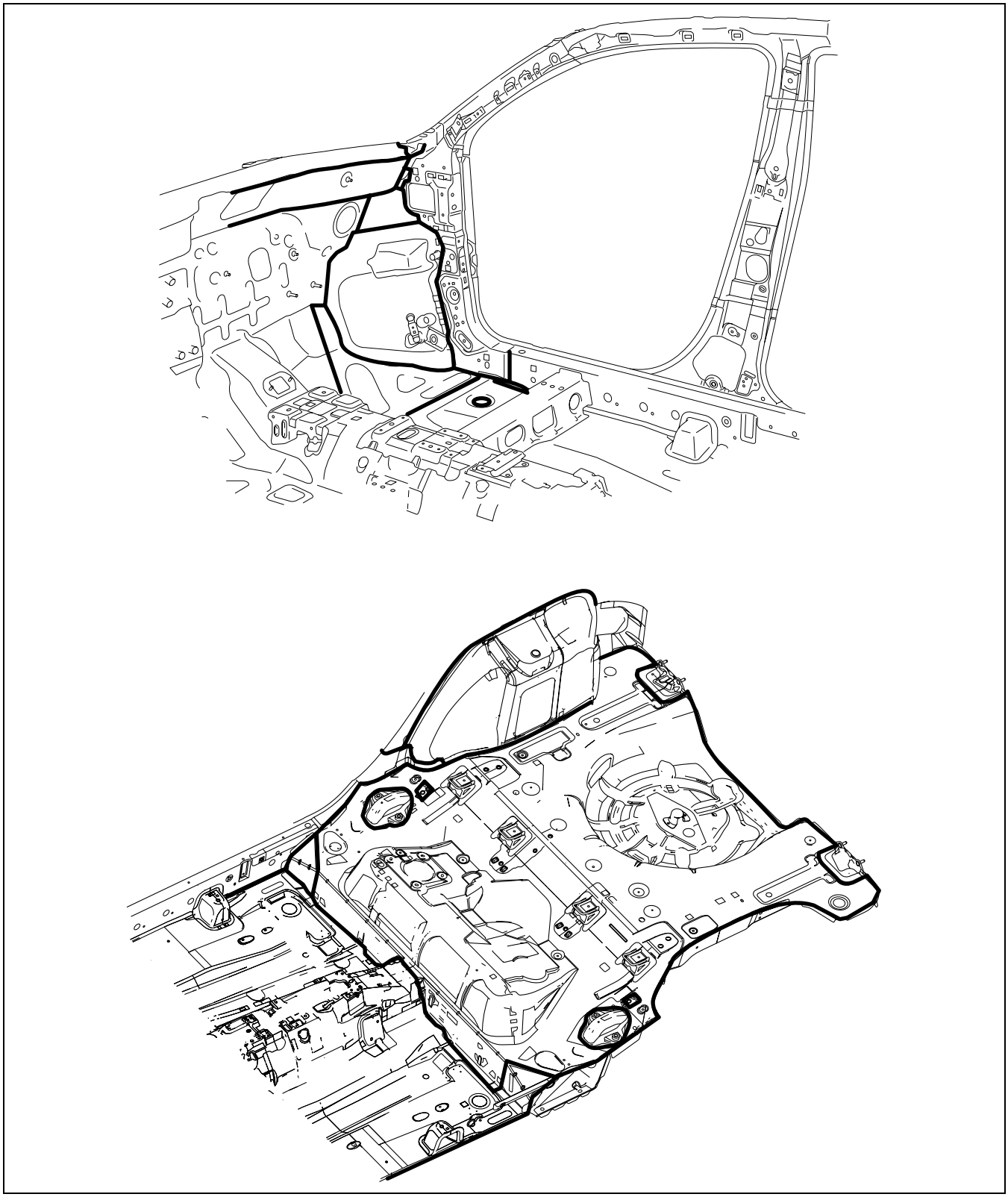
C3U098007000B02

Sealant is applied to the parts where the panels meet and to the hemmed parts of the door panel and hood panel to provide water proofing and rust proofing.

4SD

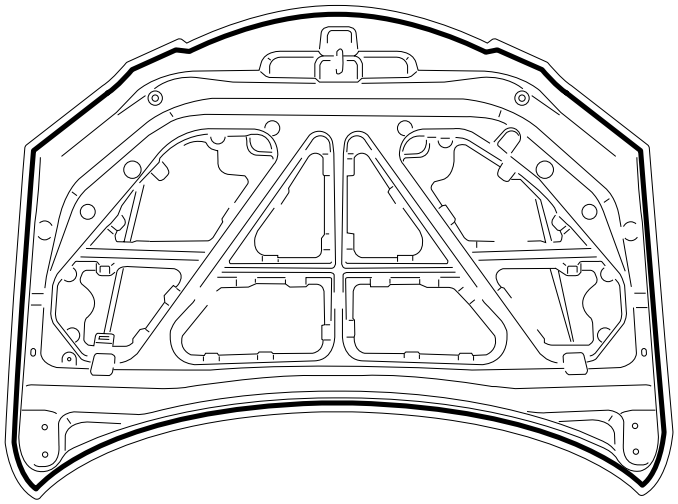


B3U0980B032

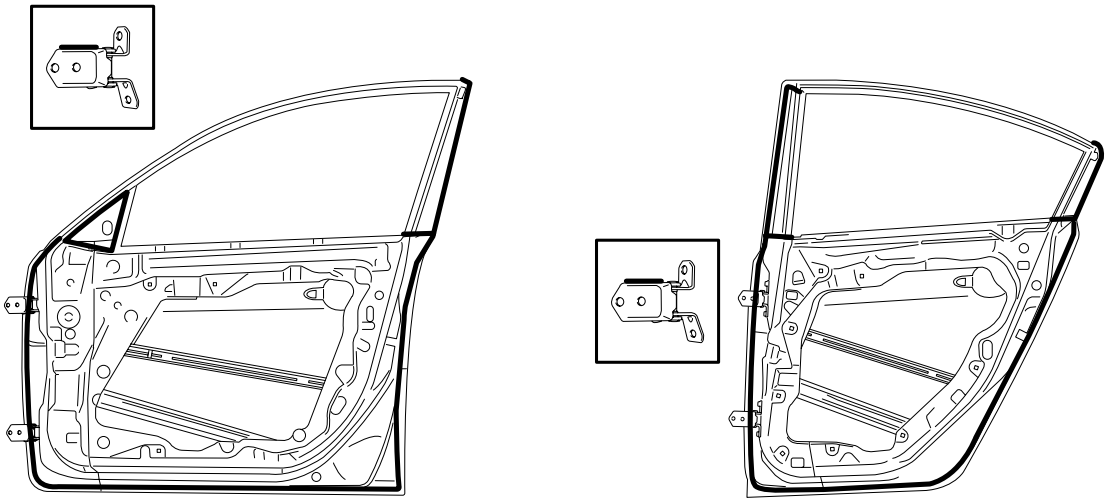


B3U0980B033

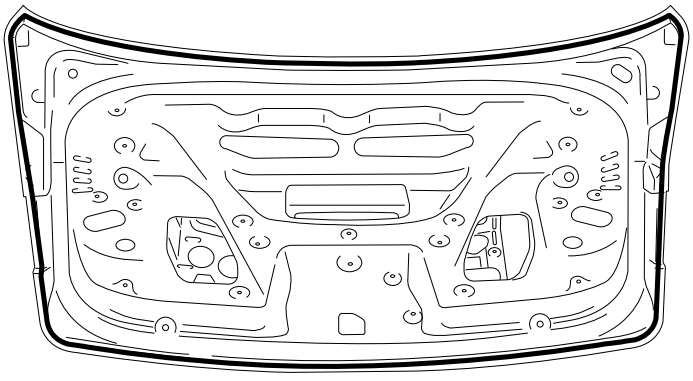
HOOD



DOOR

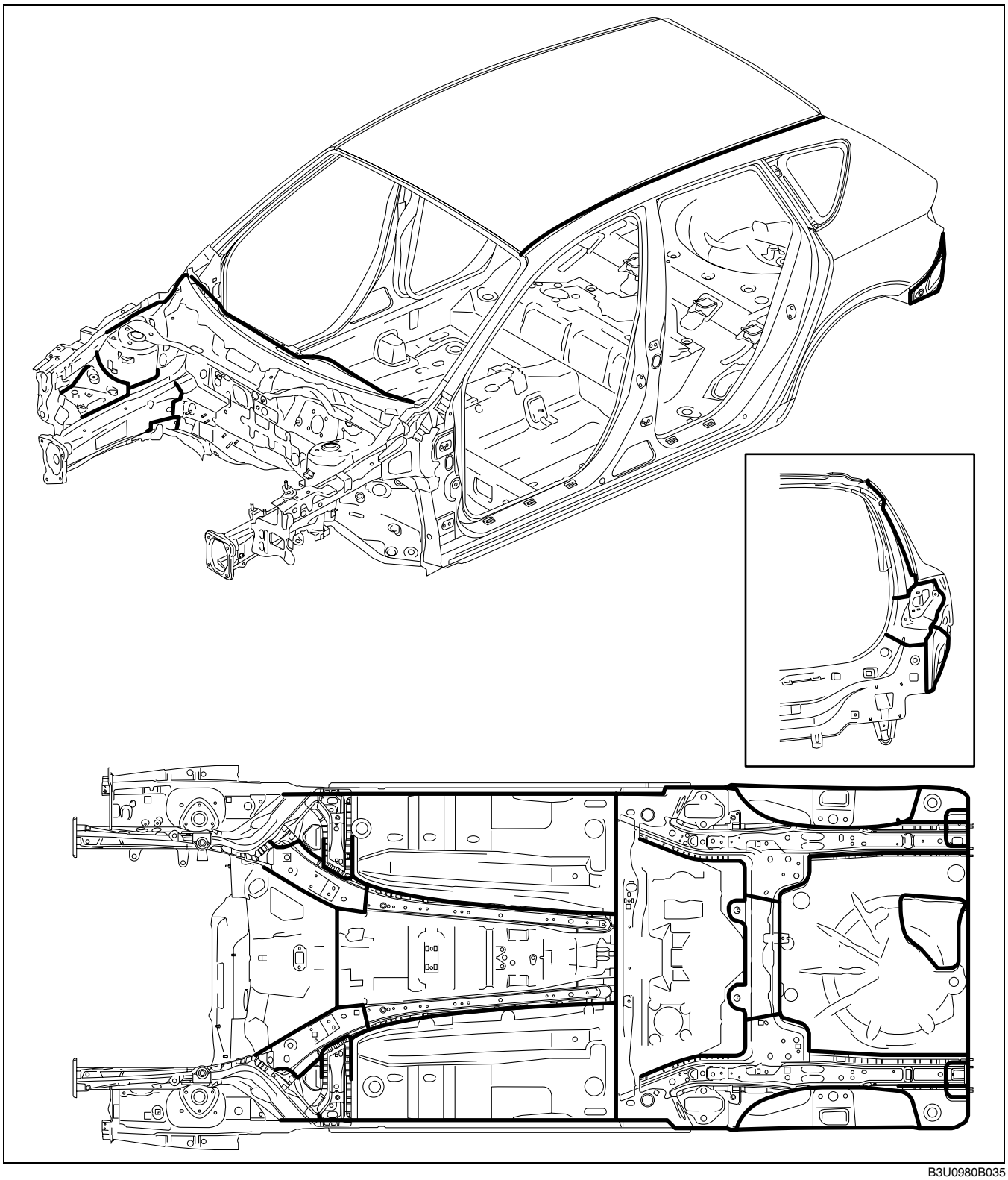


TRUNK LID

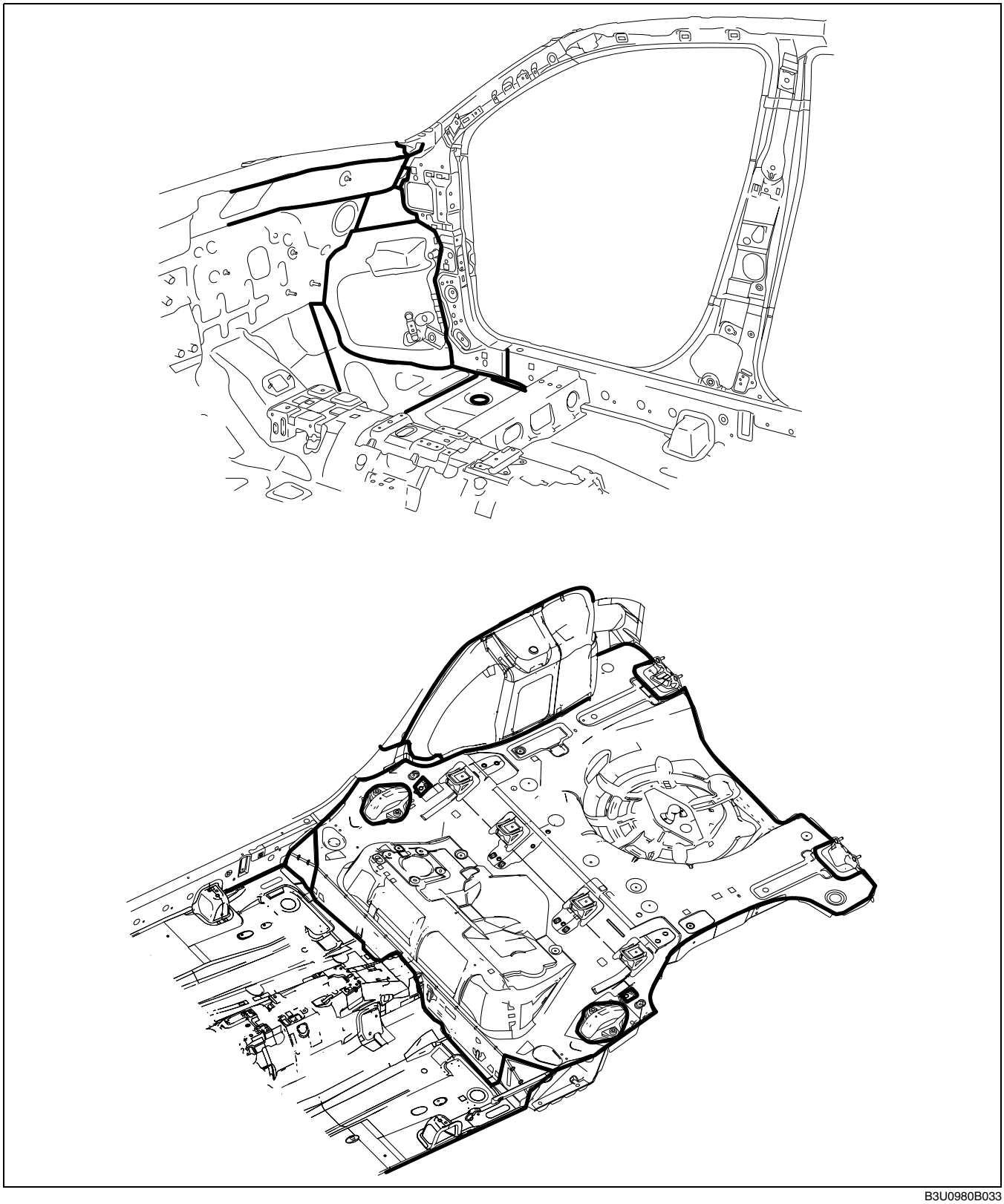


B3U0980B034

5HB

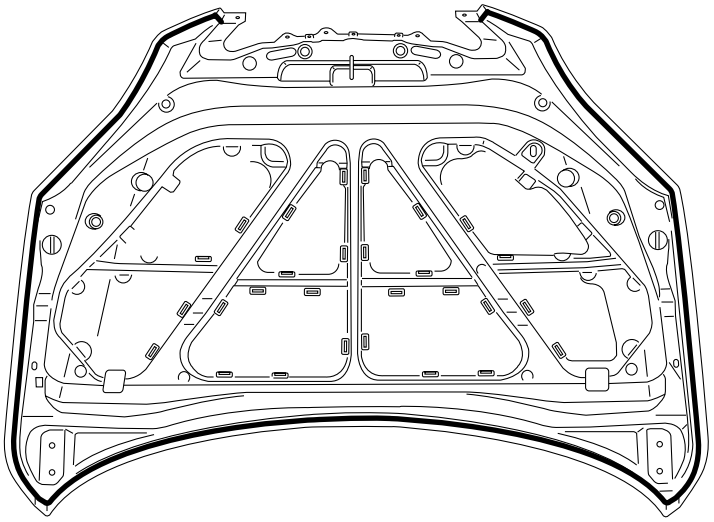


B3U0980B035

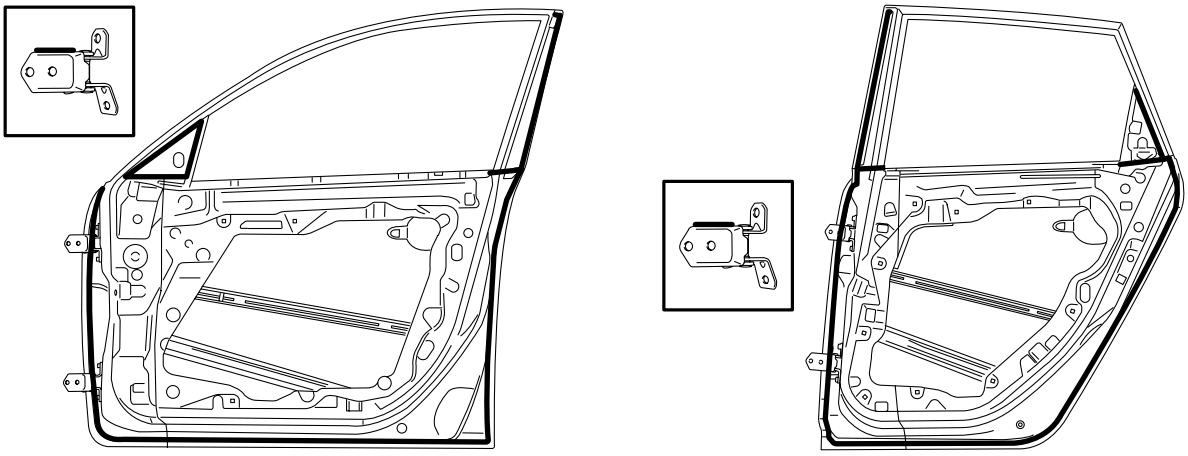


B3U0980B033

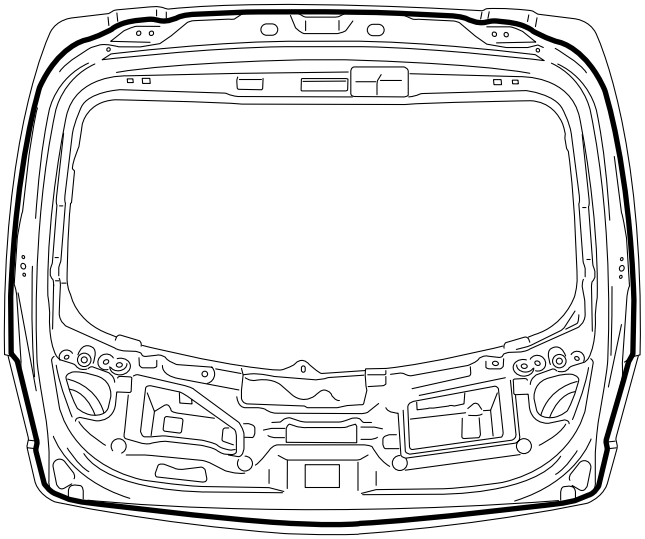
HOOD



DOOR



LIFTGATE

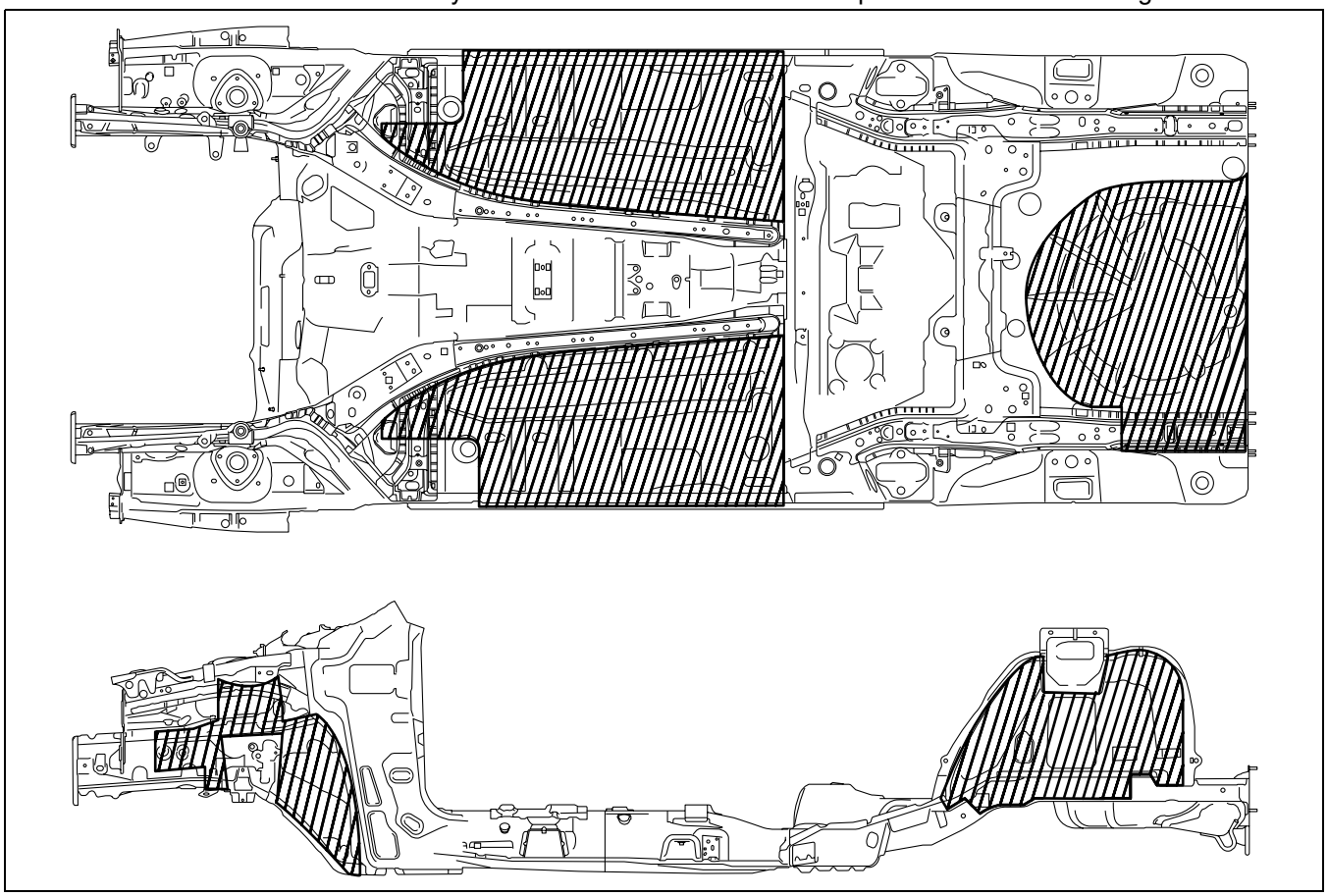


B3U0980B037

UNDER COATING

C3U098007000B03

The shaded areas indicated under body locations that are undercoated to prevent noise and rusting.



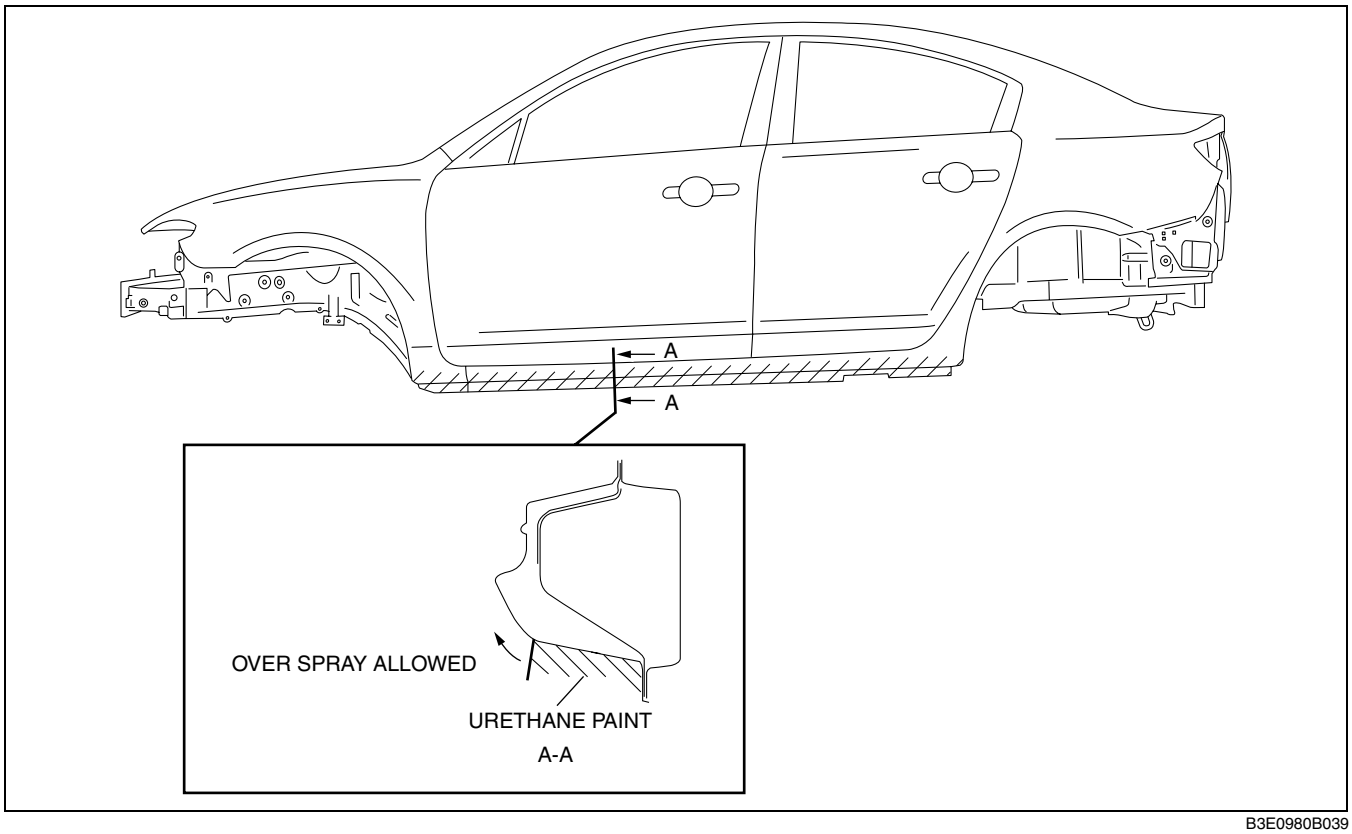
B3U0980B038

CHIPPING-RESISTANT COATING

C3U098007000B04

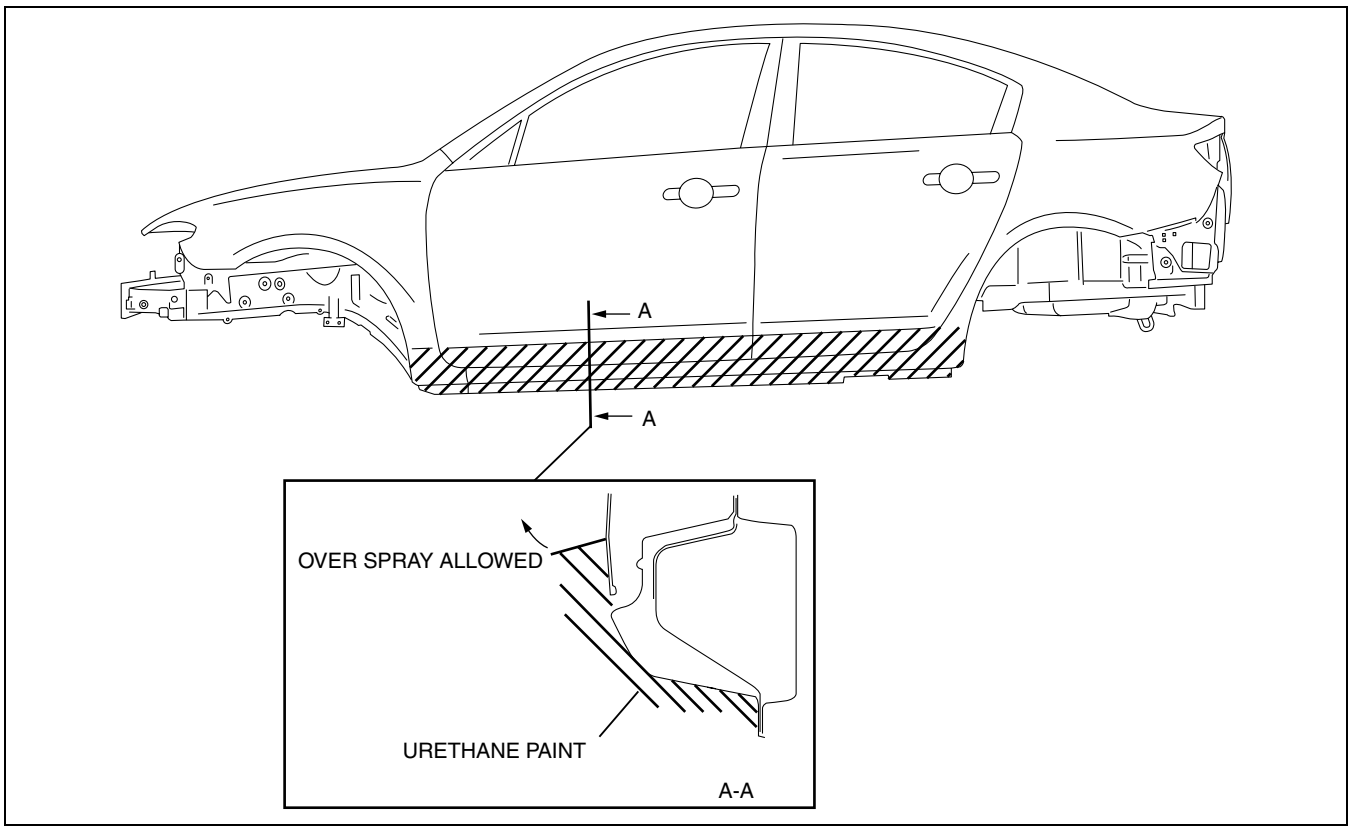
The coating locations are indicated by the shaded areas.

With Side Step Molding



B3E0980B039

Without Side Step Molding



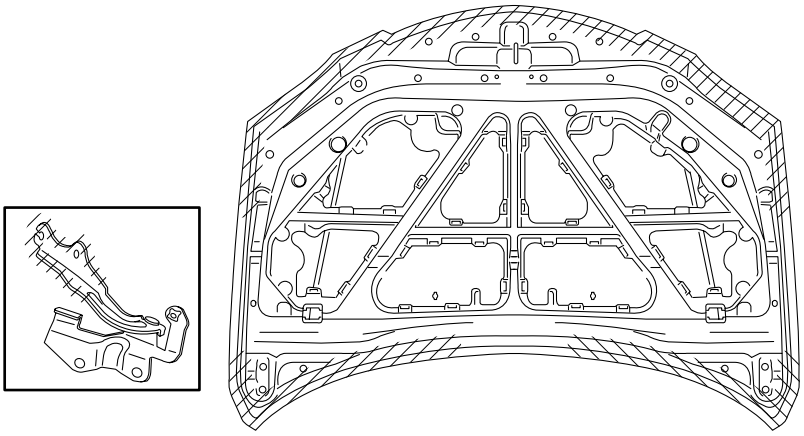
B3U0980B046

RUST PREVENTIVE TREATMENT

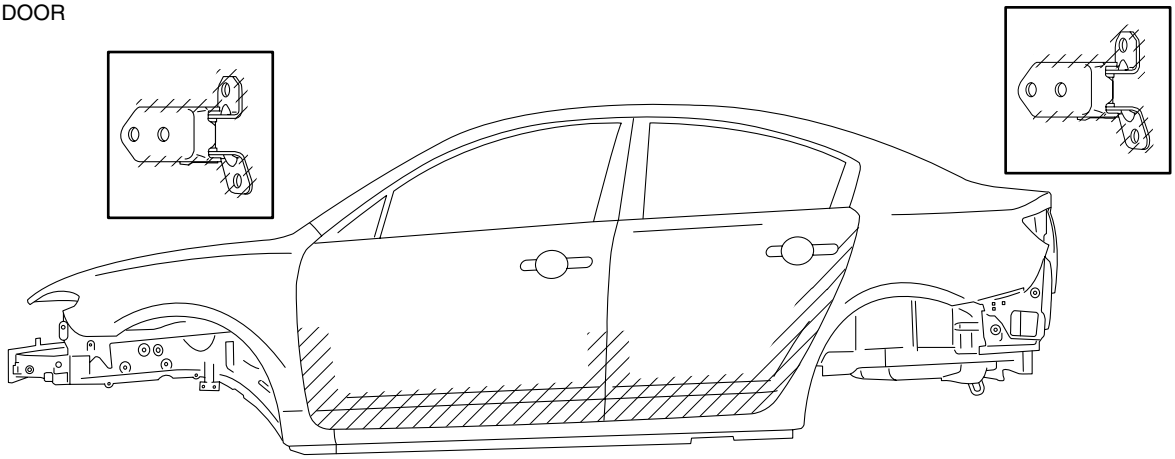
C3U098007000B05

4SD

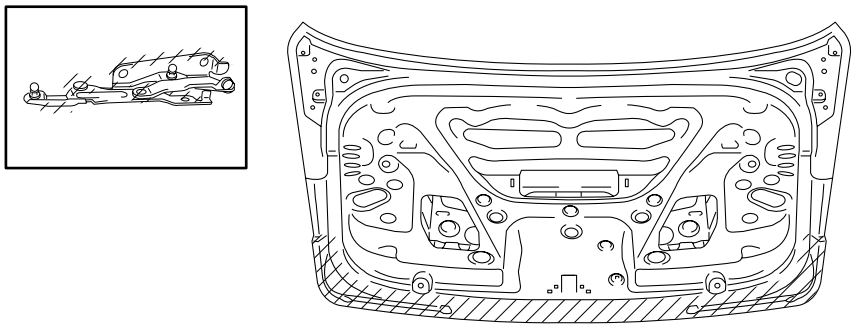
HOOD



DOOR



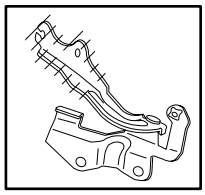
TRUNK LID

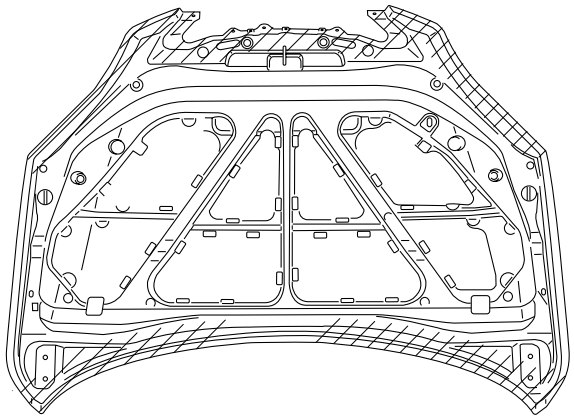


B3U0980B040

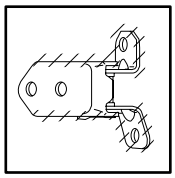
5HB

HOOD

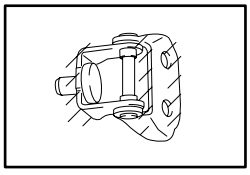


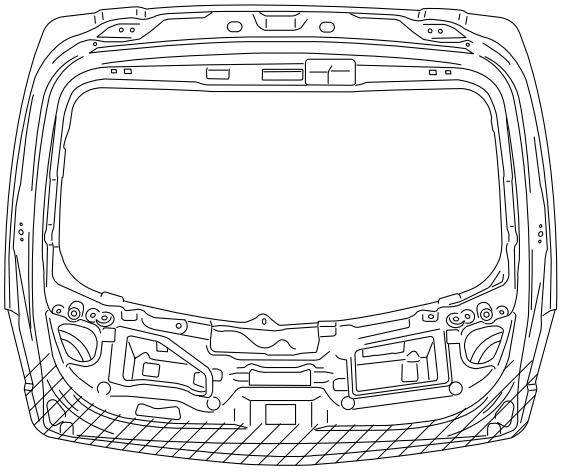


DOOR



LIFTGATE



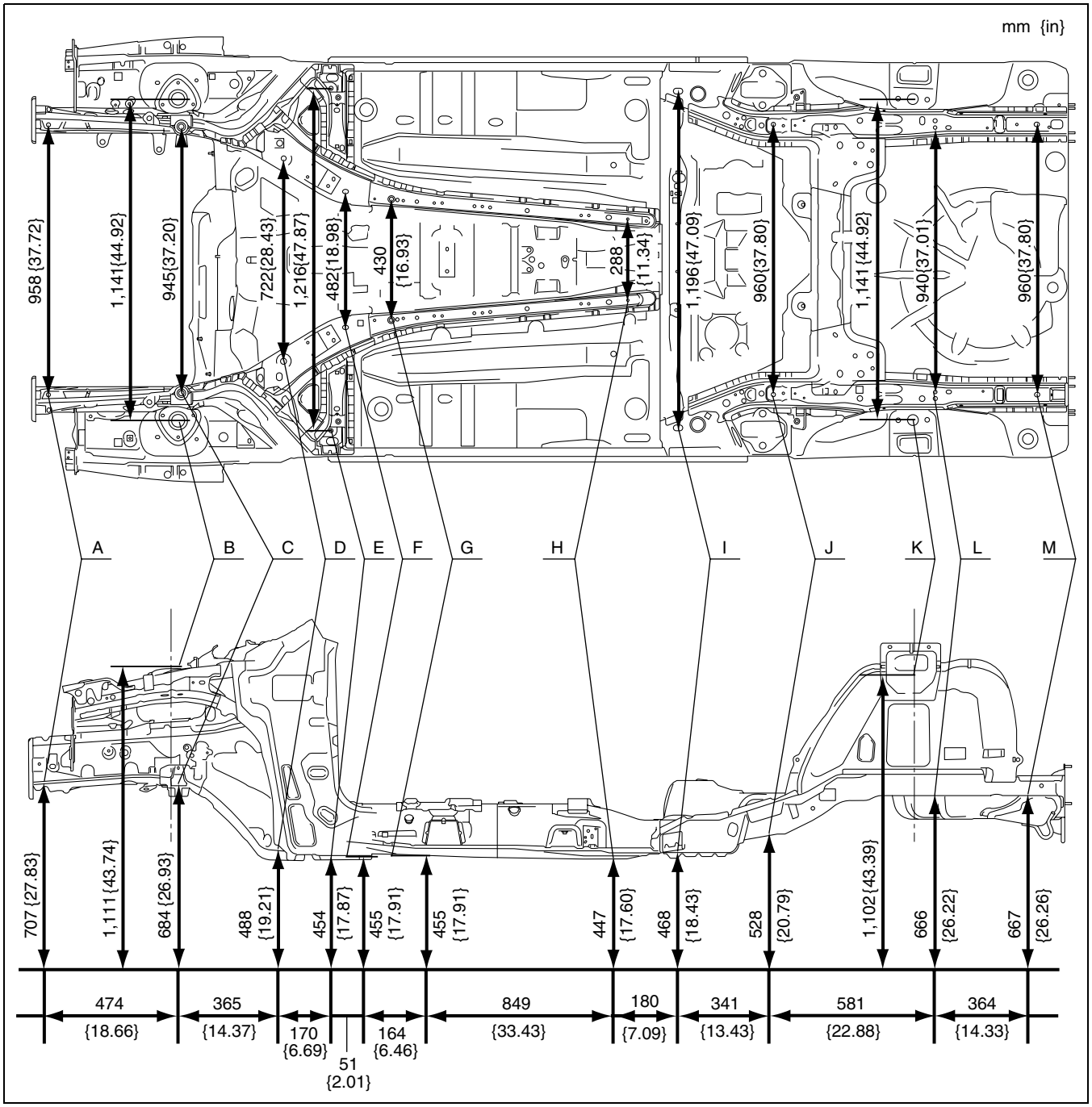


B3U0980B045

09–80D BODY STRUCTURE [DIMENSIONS]

UNDERBODY FLAT-PLANE DIMENSIONS

C3U098053010B01



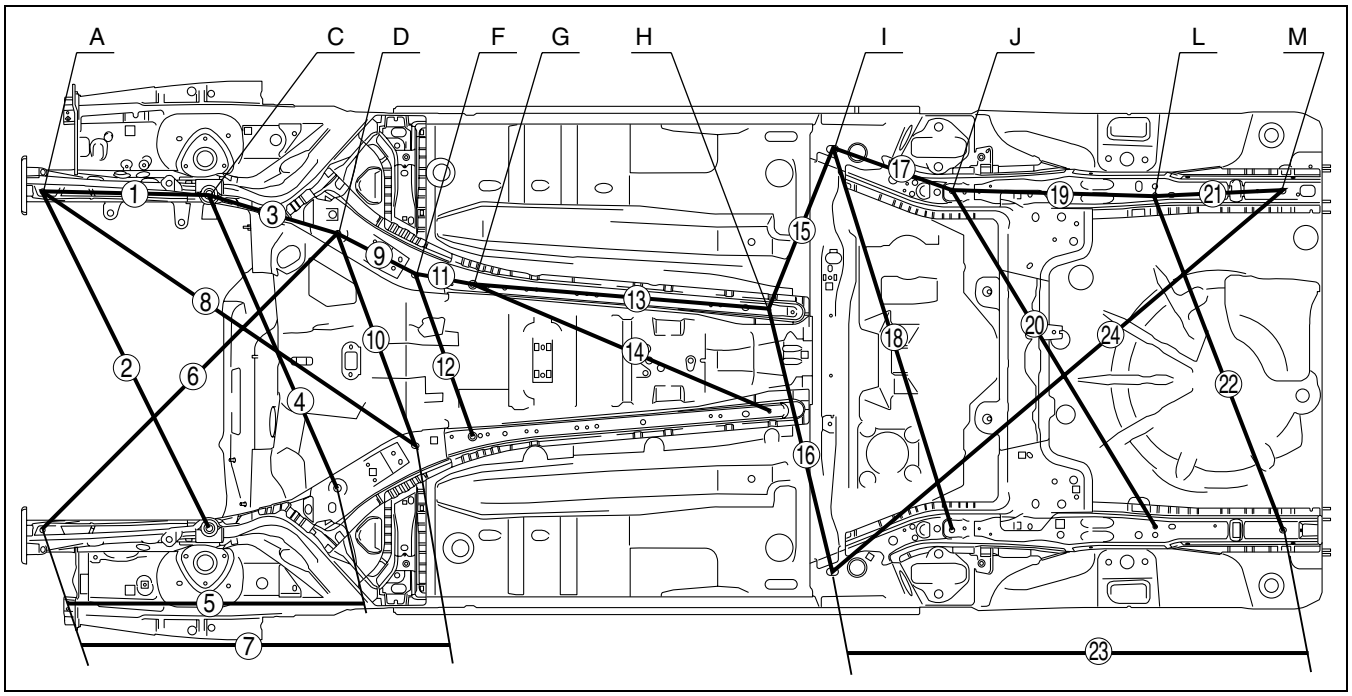
B3E0980B001

Point symbol	Designation	Hole diameter or bolt or nut size mm {in}
A	Front side frame standard hole	ø16 {0.63}
B	Front suspension mounting block	ø46 {1.81}
C	Front suspension mounting bracket	ø19 {0.75}
D	Front frame (rear) standard hole	ø20 {0.79}
E	Torque box standard hole	ø16 {0.63}
F	Front frame (rear) standard hole	16 x 6 {0.63 x 0.24}
G	Front B frame standard hole	ø16 {0.63}

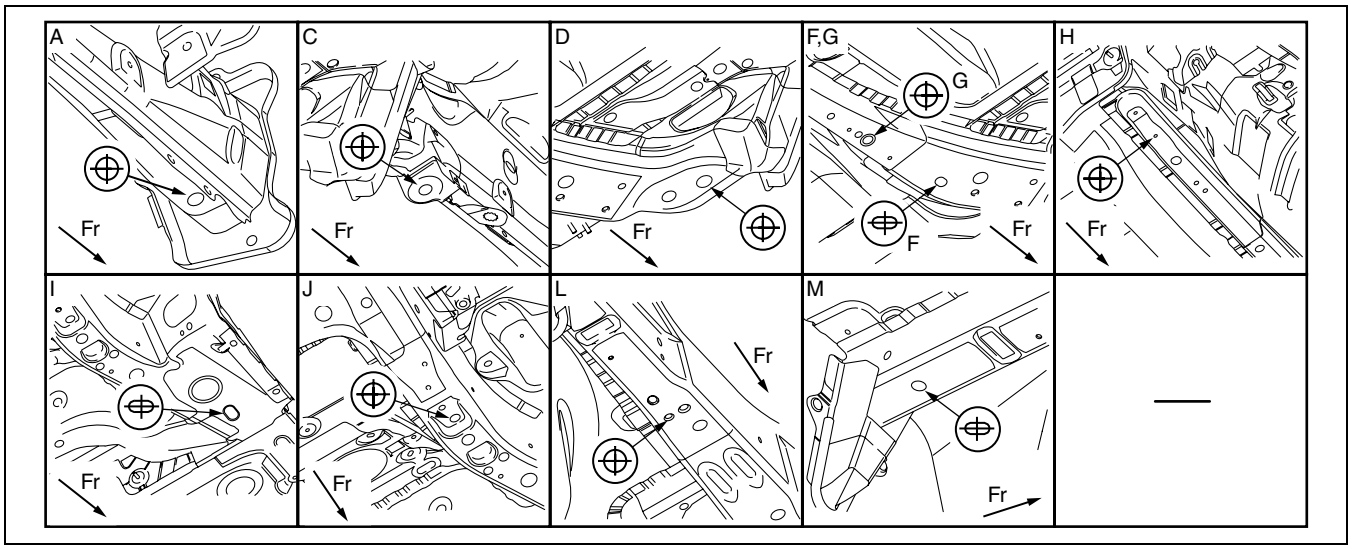
Point symbol	Designation	Hole diameter or bolt or nut size mm {in}
H	Front B frame standard hole	ø7 {0.28}
I	Crossmember No.3 reinforcement	36 x 22 {1.41 x 0.87}
J	Rear side frame standard hole	ø16 {0.63}
K	Rear suspension mounting block	ø40 {1.57}
L	Rear side frame standard hole	ø14 {0.55}
M	Rear side frame standard hole	16 x20 {0.63 x 0.79}

UNDERBODY STRAIGHT-LINE DIMENSIONS

C3U098053010B02



B3E0980B002



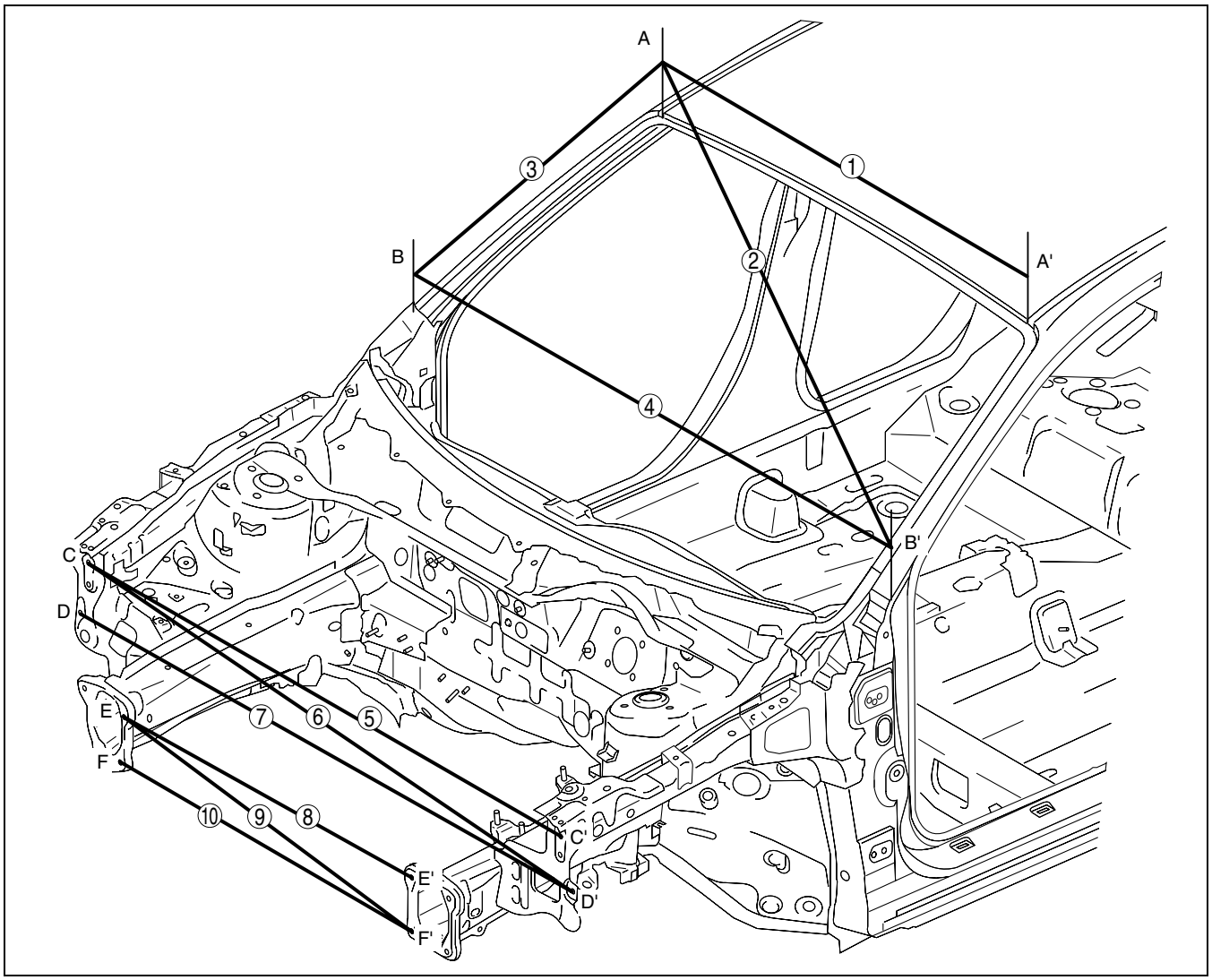
B3E0980B003

Measured location	Dimensions mm {in}
1	475 {18.70}
2	1,063 {41.85}
3	429 {16.89}
4	931 {36.65}
5	875 {34.45}
6	1,207 {47.52}
7	1,115 {43.90}
8	1,306 {51.42}
9	254 {10.00}
10	642 {25.28}
11	166 {6.54}
12	485 {19.09}

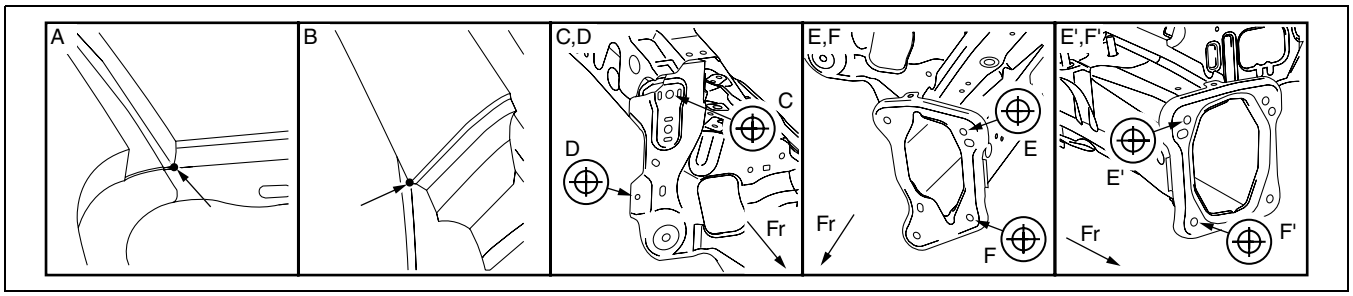
Measured location	Dimensions mm {in}
13	852 {33.54}
14	921 {36.26}
15	489 {19.25}
16	764 {30.08}
17	366 {14.41}
18	1,132 {44.57}
19	598 {23.54}
20	1,122 {44.17}
21	364 {14.33}
22	1,017 {40.04}
23	1,307 {51.46}
24	1,690 {66.54}

FRONT BODY STRAIGHT-LINE DIMENSIONS (1)

C3U098053020B01



B3E0980B004



B3E0980B005

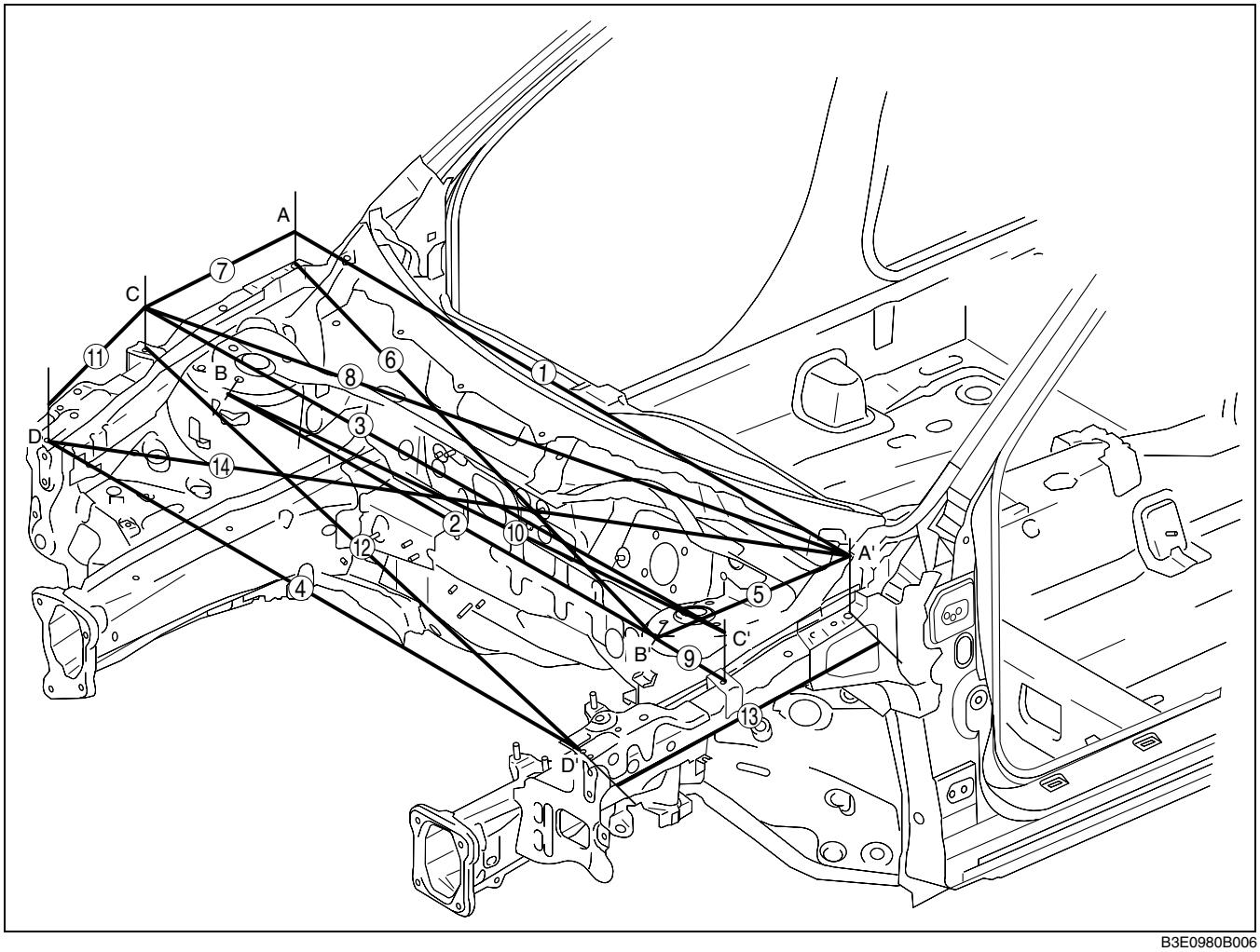
Measured location	Dimensions mm {in}
1	1,069 {42.09}
2	1,446 {56.93}
3	4SD:685 {26.97}, 5HB:684 {26.93}
4	4SD:1,518 {59.76}, 5HB:1,519 {59.80}
5	1,425 {56.10}

Measured location	Dimensions mm {in}
6	1,463 {57.60}
7	1,489 {58.62}
8	882 {34.72}
9	891 {35.08}
10	882 {34.72}

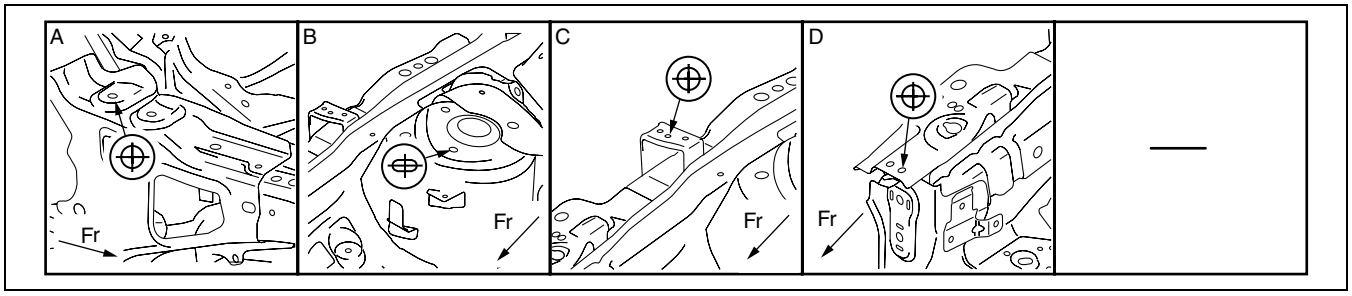
FRONT BODY STRAIGHT-LINE DIMENSIONS (2)

C3U098053020B02

4SD



B3E0980B006

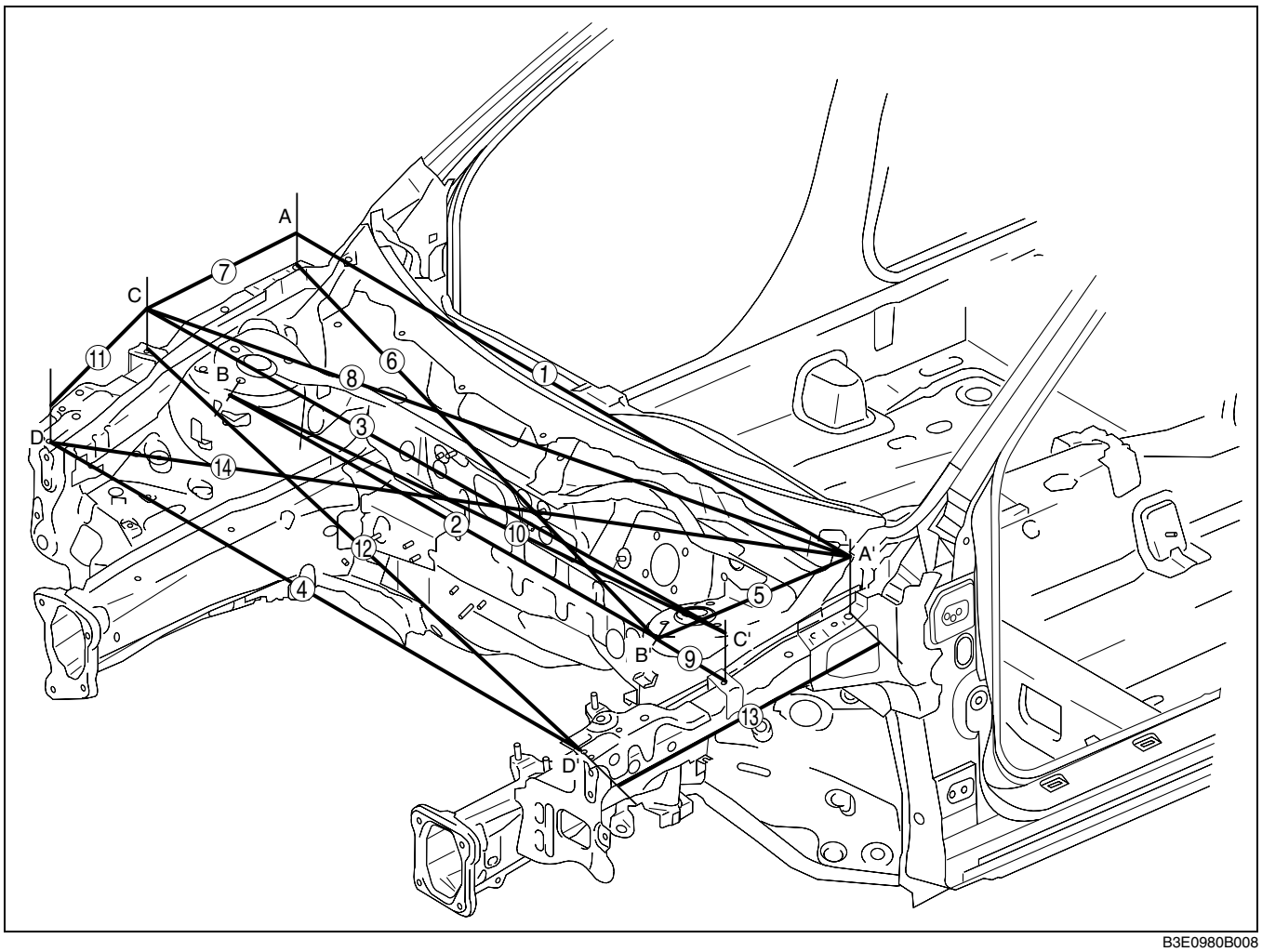


B3E0980B007

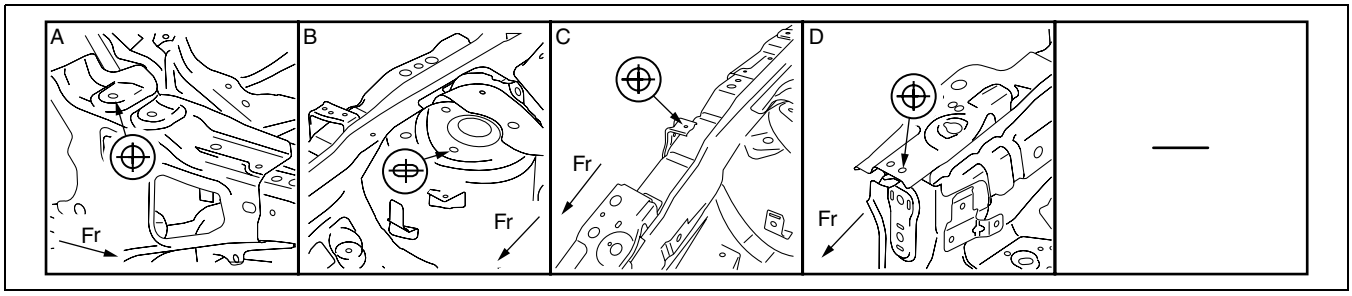
Measured location	Dimensions mm {in}
1	1,494 {58.82}
2	1,103 {43.43}
3	1,491 {58.70}
4	1,368 {53.86}
5	414 {16.30}
6	1,349 {53.11}
7	407 {16.02}

Measured location	Dimensions mm {in}
8	1,547 {60.91}
9	200 {7.87}
10	1,298 {51.10}
11	308 {12.13}
12	1,461 {57.52}
13	708 {27.87}
14	1,596 {62.83}

5HB



B3E0980B008



B3E0980B009

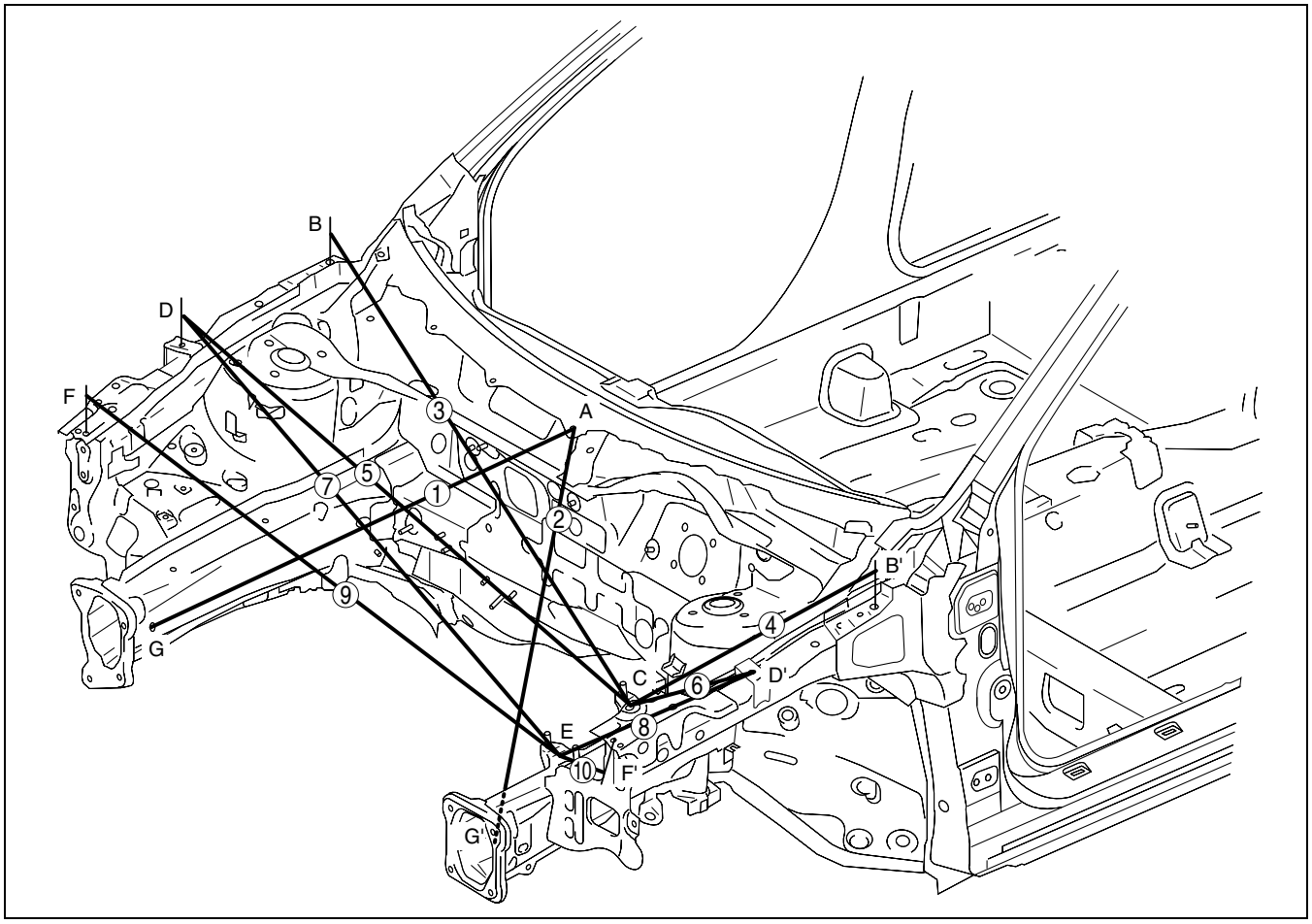
Measured location	Dimensions mm {in}
1	1,494 {58.82}
2	1,103 {43.43}
3	1,508 {59.37}
4	1,368 {53.86}
5	414 {16.30}
6	1,349 {53.11}
7	410 {16.14}

Measured location	Dimensions mm {in}
8	1,556 {61.26}
9	208 {8.19}
10	1,306 {51.42}
11	304 {11.97}
12	1,468 {57.80}
13	708 {27.87}
14	1,596 {62.83}

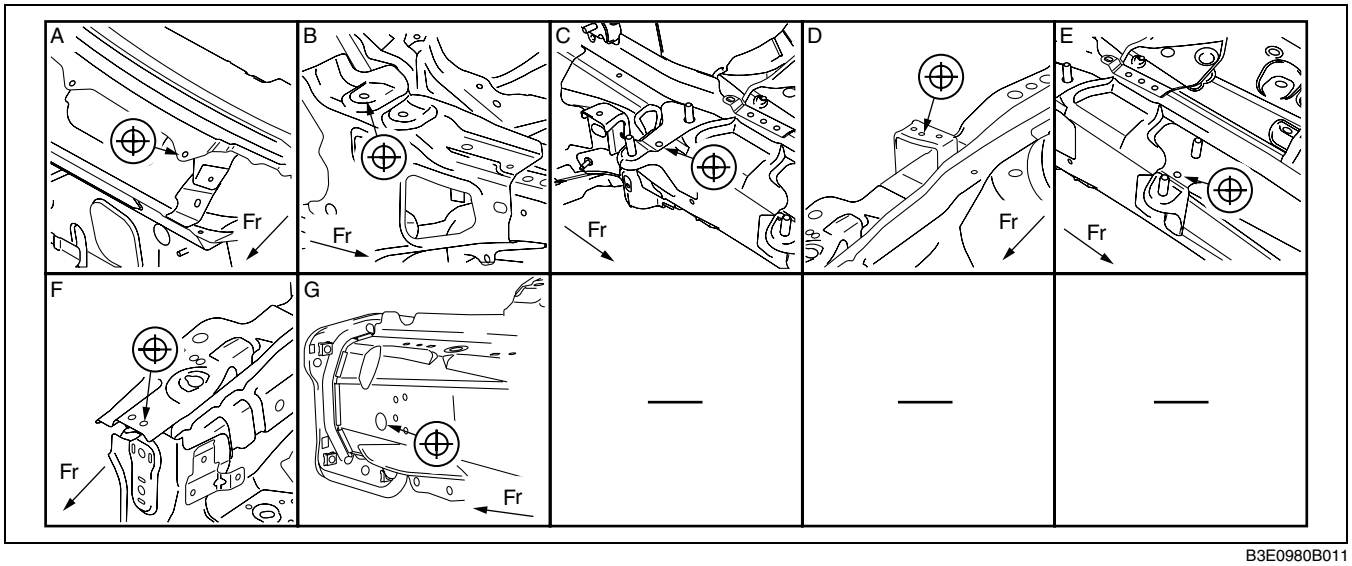
FRONT BODY STRAIGHT-LINE DIMENSIONS (3)

C3U098053020B03

4SD



B3E0980B010

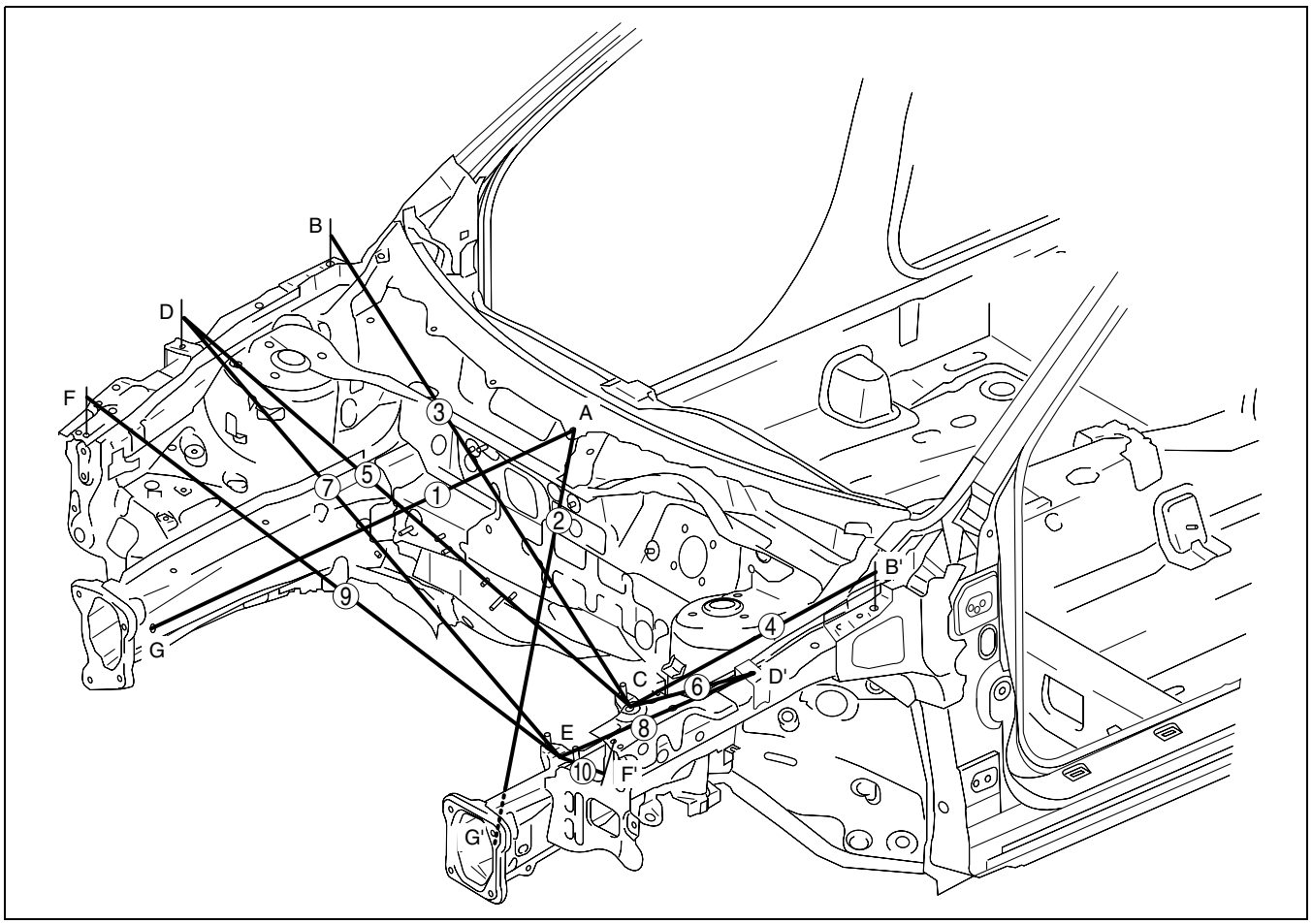


B3E0980B011

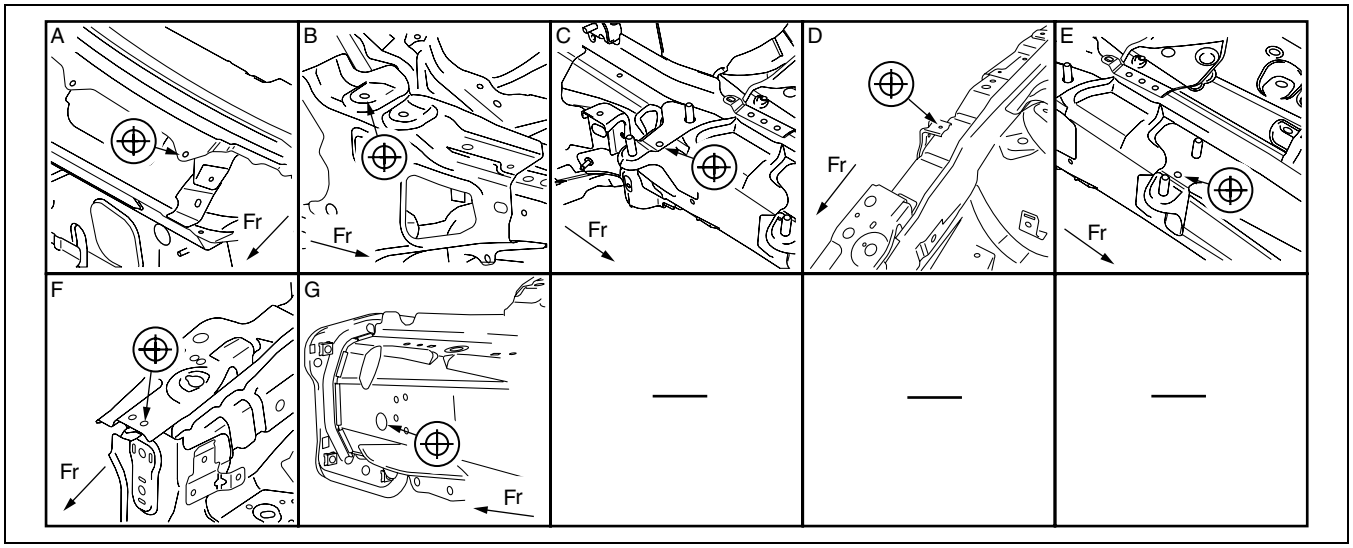
Measured location	Dimensions mm {in}
1	851 {33.50}
2	806 {31.73}
3	1,268 {49.92}
4	570 {22.44}
5	1,203 {47.36}

Measured location	Dimensions mm {in}
6	408 {16.06}
7	1,239 {48.78}
8	432 {17.01}
9	1,160 {45.67}
10	331 {13.03}

5HB



B3E0980B014



B3E0980B015

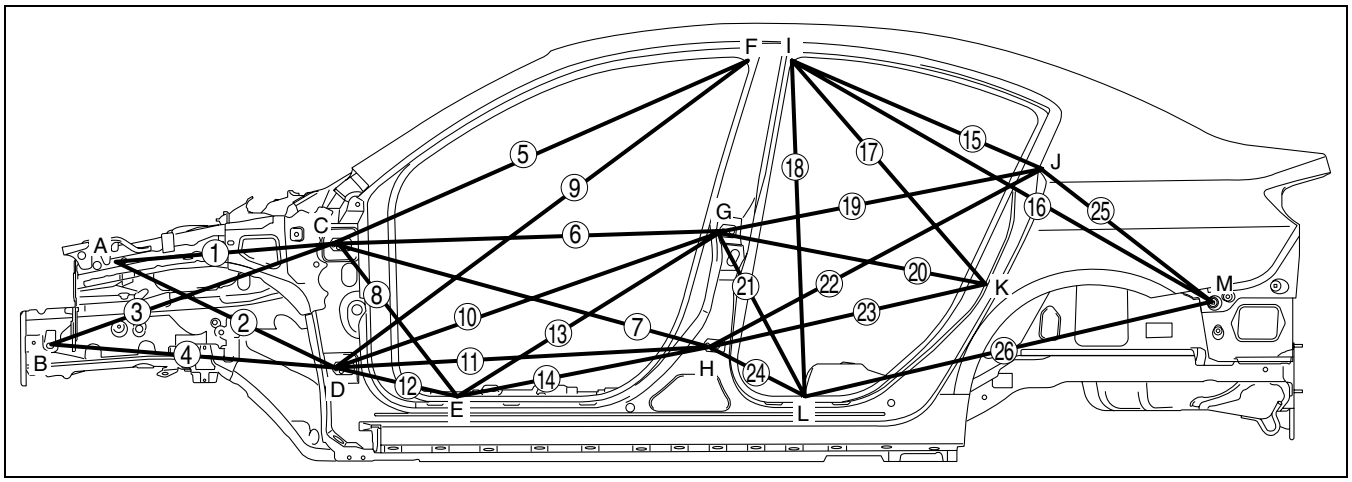
Measured location	Dimensions mm {in}
1	851 {33.50}
2	806 {31.73}
3	1,268 {49.92}
4	570 {22.44}
5	1,205 {47.44}

Measured location	Dimensions mm {in}
6	398 {15.67}
7	1,241 {48.86}
8	421 {16.57}
9	1,160 {45.67}
10	331 {13.03}

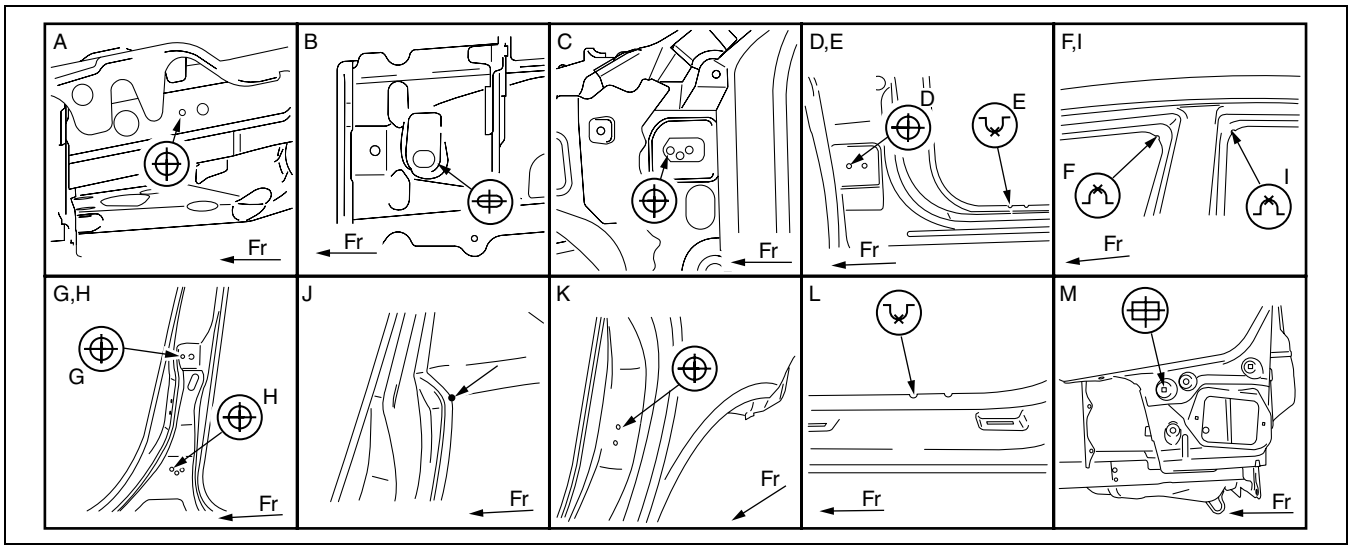
CABIN SIDE FRAME STRAIGHT-LINE DIMENSIONS

C3U098070010B01

4SD



B3E0980B018

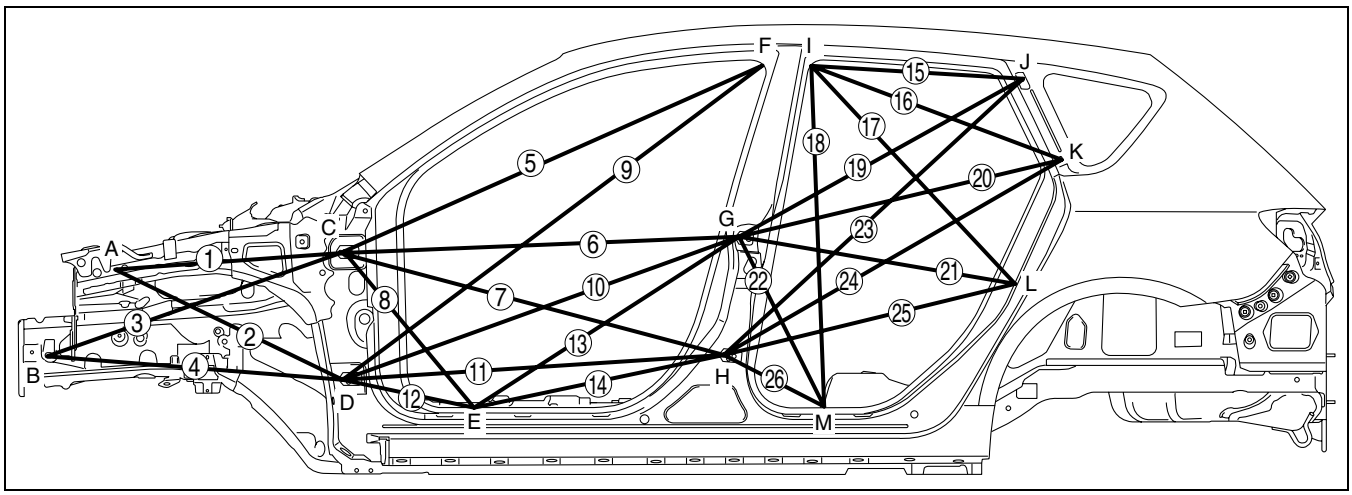


B3E0980B019

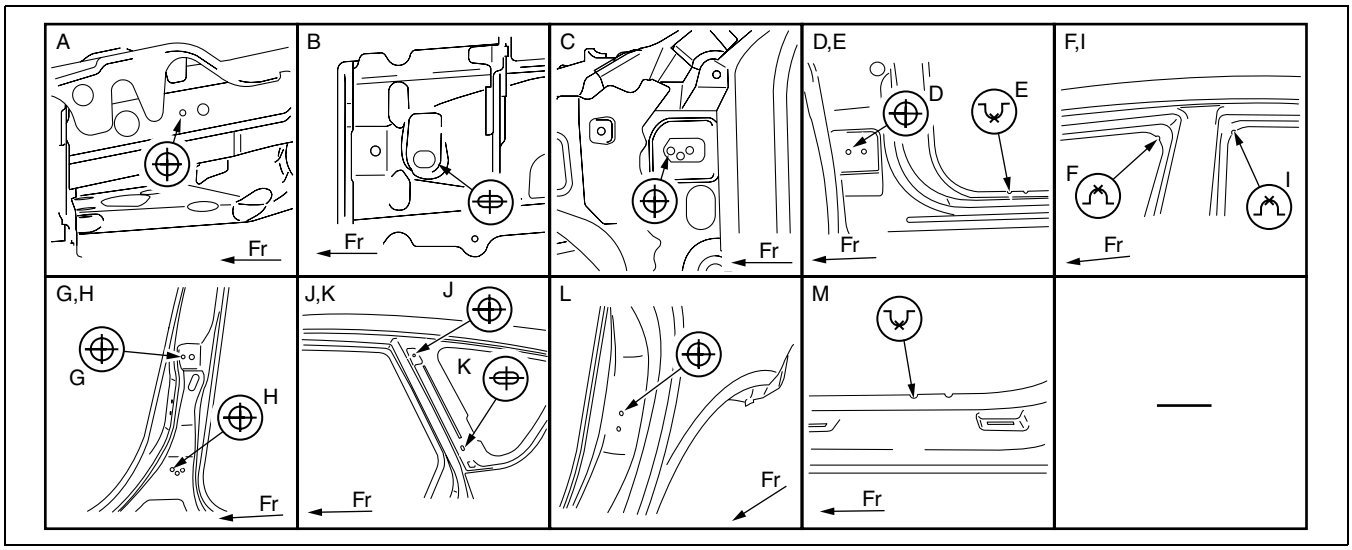
Measured location	Dimensions mm {in}
1	642 {25.28}
2	719 {28.31}
3	916 {36.06}
4	882 {34.72}
5	1,325 {52.17}
6	1,133 {44.61}
7	1,125 {44.29}
8	595 {23.43}
9	1,500 {59.06}
10	1,192 {46.93}
11	1,079 {42.48}
12	399 {15.71}
13	884 {34.80}

Measured location	Dimensions mm {in}
14	712 {28.03}
15	808 {31.81}
16	1,434 {56.46}
17	865 {34.06}
18	988 {38.90}
19	947 {37.28}
20	795 {31.30}
21	548 {21.57}
22	1,101 {43.35}
23	857 {33.74}
24	342 {13.46}
25	637 {25.08}
26	1,212 {47.72}

5HB



B3E0980B020



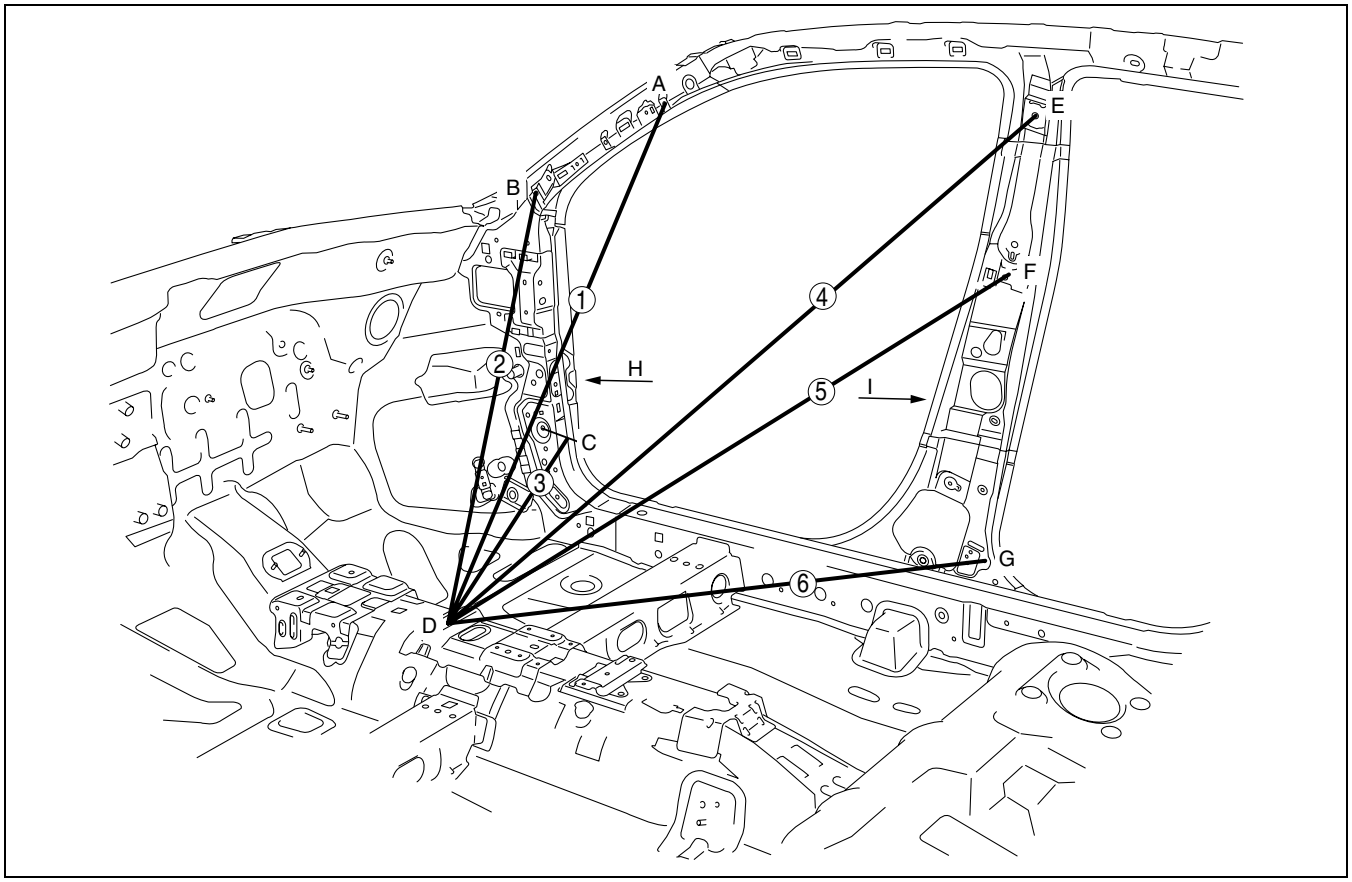
B3E0980B021

Measured location	Dimensions mm {in}
1	642 {25.28}
2	719 {28.31}
3	916 {36.06}
4	882 {34.72}
5	1,325 {52.17}
6	1,133 {44.61}
7	1,125 {44.29}
8	595 {23.43}
9	1,500 {59.06}
10	1,192 {46.93}
11	1,079 {42.48}
12	399 {15.71}
13	884 {34.80}

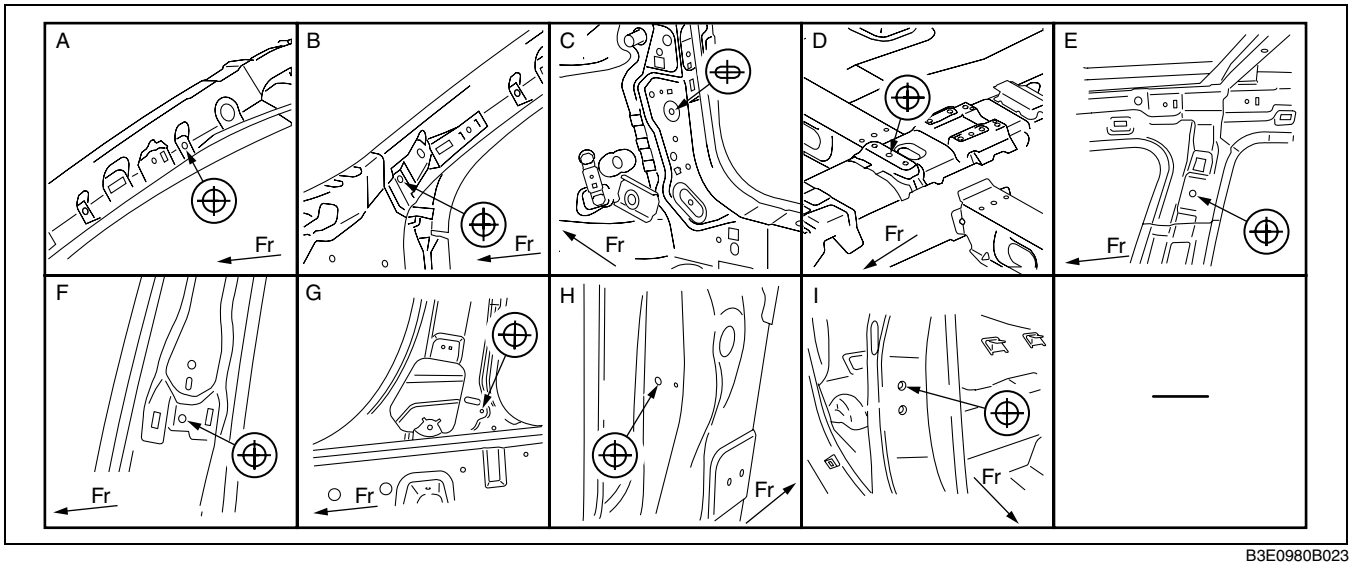
Measured location	Dimensions mm {in}
14	712 {28.03}
15	598 {23.54}
16	766 {30.16}
17	865 {34.06}
18	988 {38.90}
19	930 {36.61}
20	939 {36.97}
21	795 {31.30}
22	548 {21.57}
23	1,162 {45.75}
24	1,108 {43.62}
25	857 {33.74}
26	342 {13.46}

ROOM STRAIGHT-LINE DIMENSIONS (1)

C3U098070001B01



B3E0980B022



B3E0980B023

Measured location	Dimensions mm {in}
1	1033 {40.67}
2	957 {37.68}
3	765 {30.12}
4	1339 {52.72}

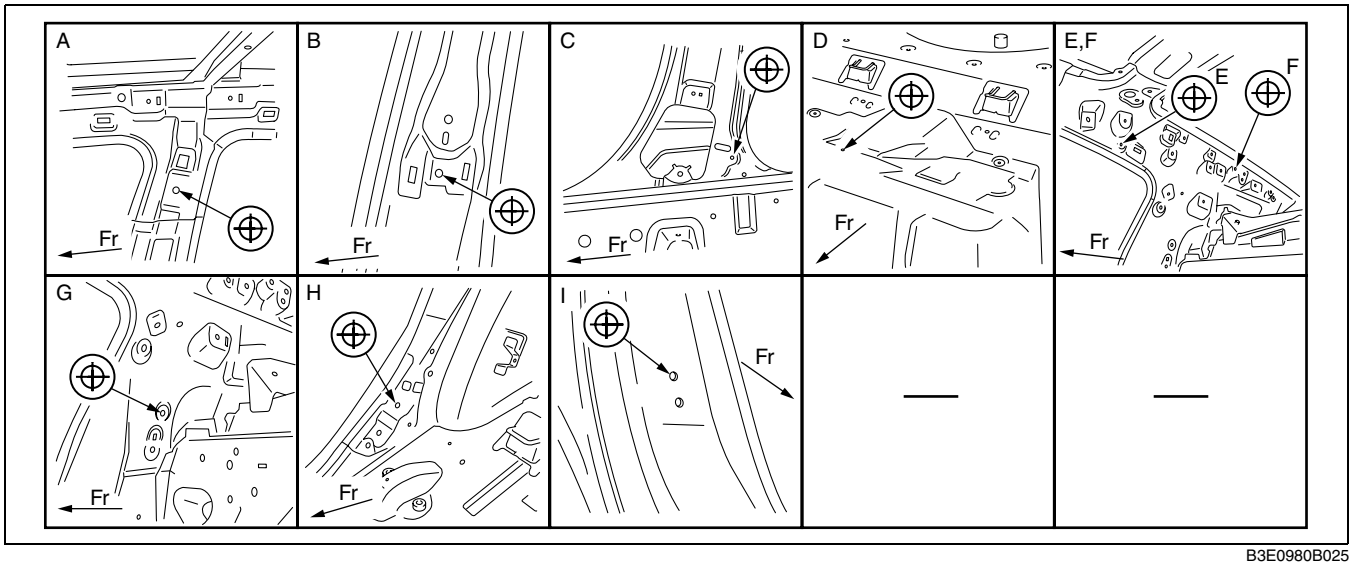
Measured location	Dimensions mm {in}
5	1154 {45.43}
6	1003 {39.49}
H-H'	1485 {58.46}
I-I'	1466 {57.72}

ROOM STRAIGHT-LINE DIMENSIONS (2)

C3U098070001B02

4SD

B3E0980B024

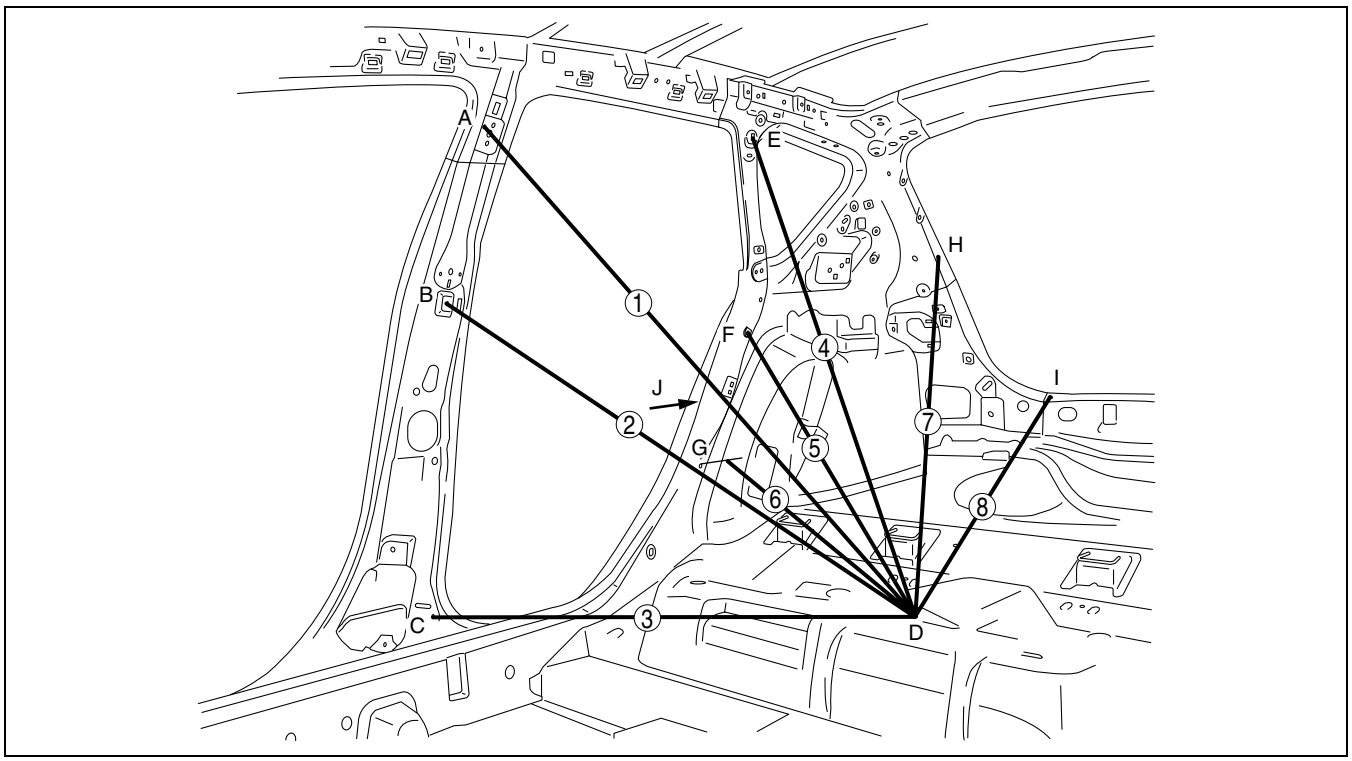


B3E0980B025

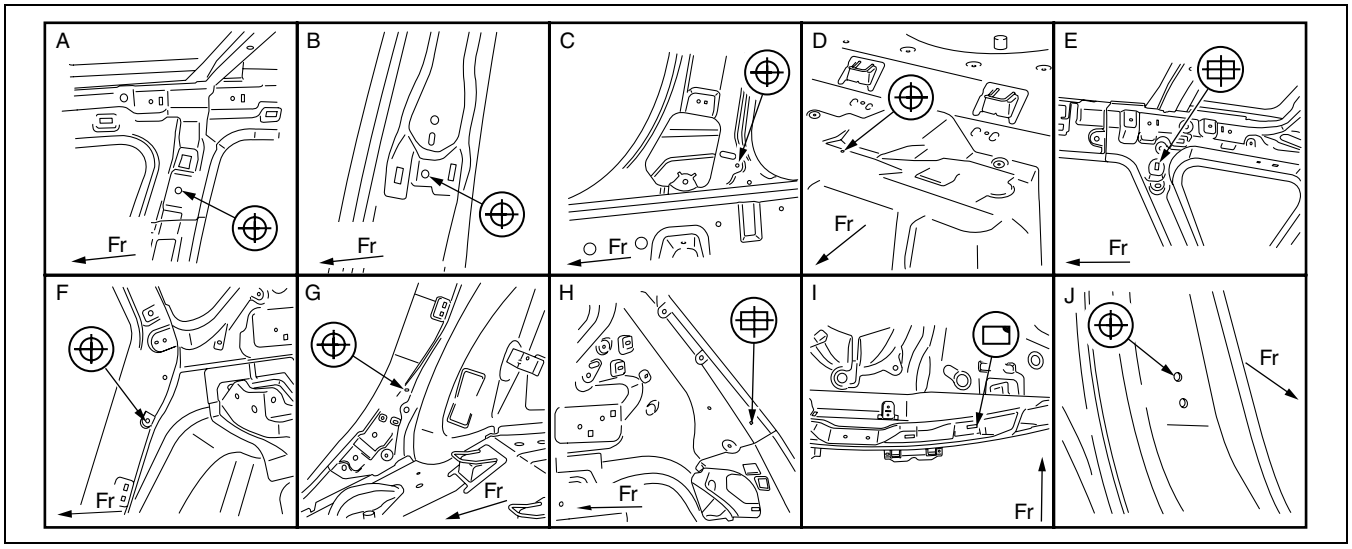
Measured location	Dimensions mm {in}
1	1,046 {41.18}
2	908 {35.75}
3	816 {32.13}
4	1,081 {42.56}

Measured location	Dimensions mm {in}
5	1,211 {47.68}
6	1,079 {42.48}
7	787 {30.98}
I-I'	1,510 {59.45}

5HB



B3E0980B026



B3E0980B027

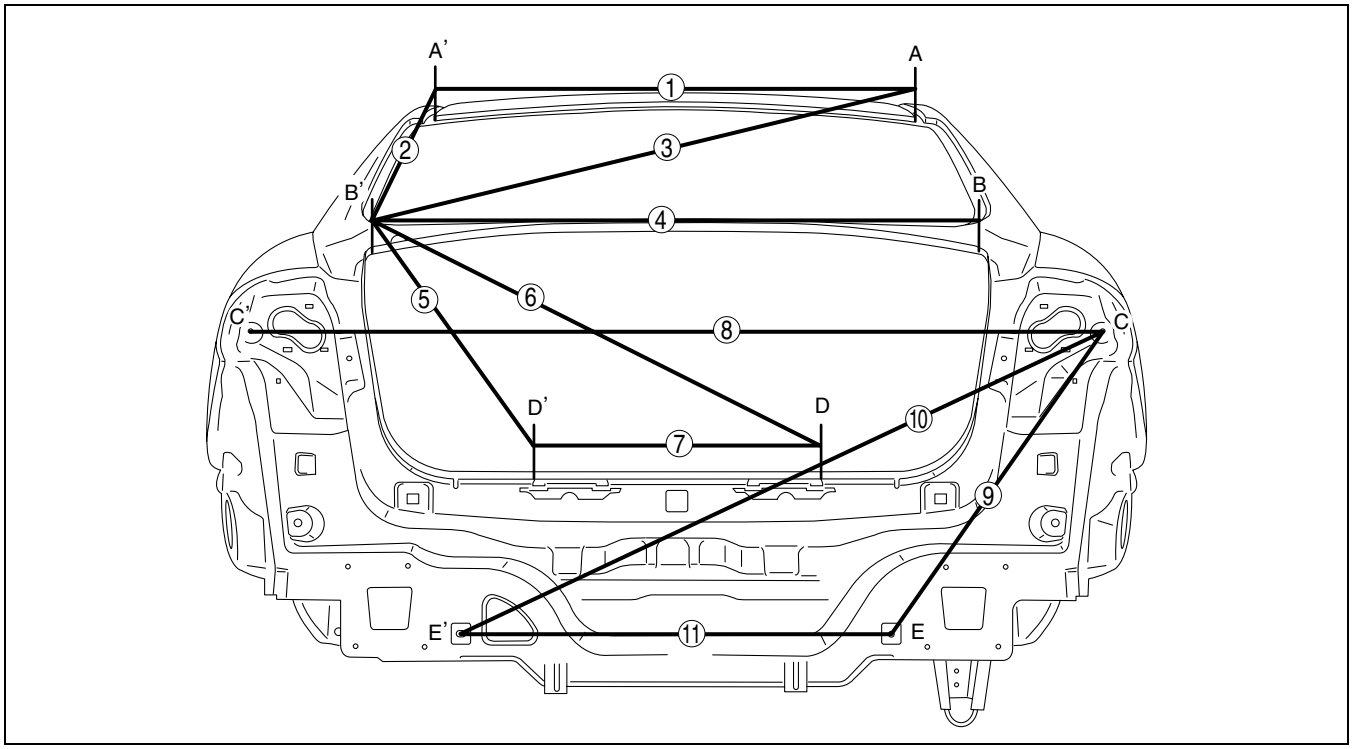
Measured location	Dimensions mm {in}
1	1,046 {41.18}
2	908 {35.75}
3	816 {32.13}
4	1,088 {42.83}
5	928 {36.54}

Measured location	Dimensions mm {in}
6	787 {30.98}
7	1,328 {52.28}
8	1,373 {54.06}
J-J'	1,510 {59.45}

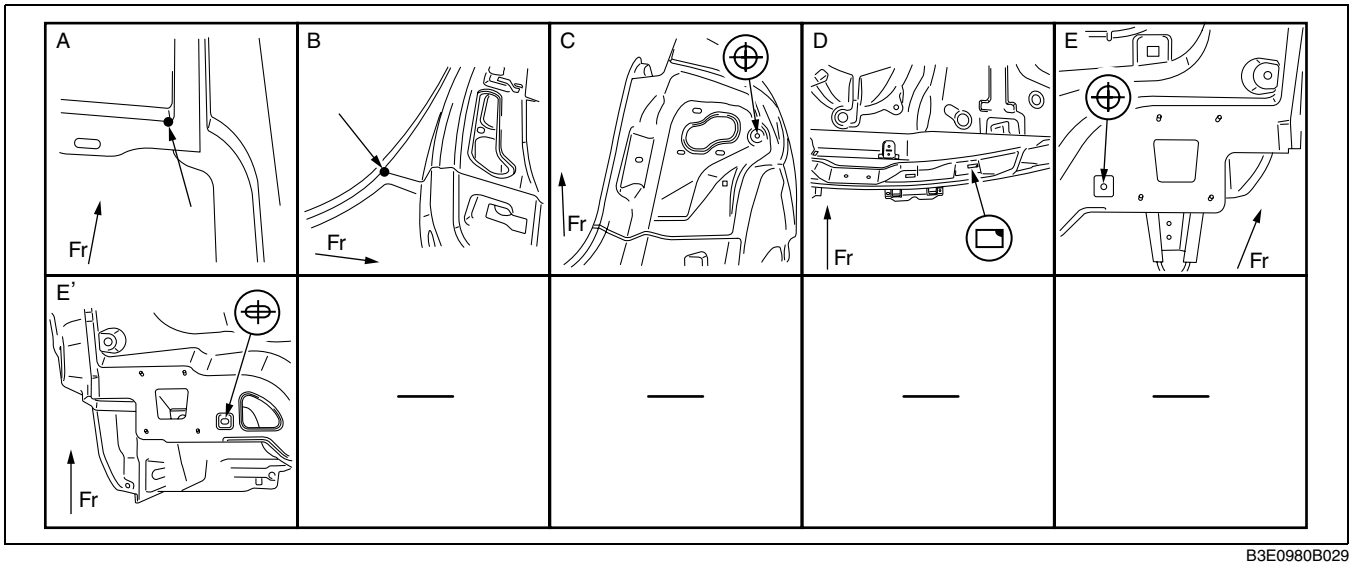
REAR BODY STRAIGHT-LINE DIMENSIONS

C3U098070002B01

4SD



B3E0980B028

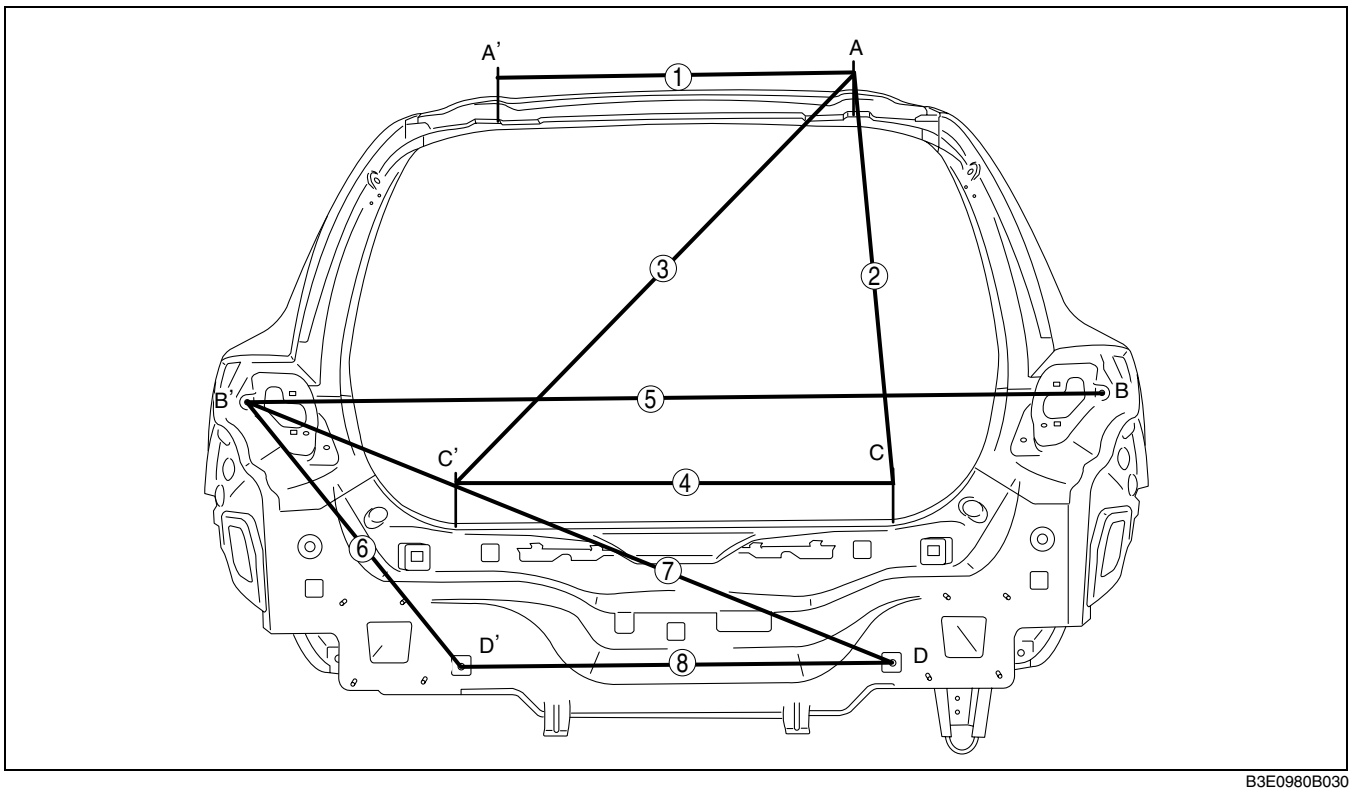


B3E0980B029

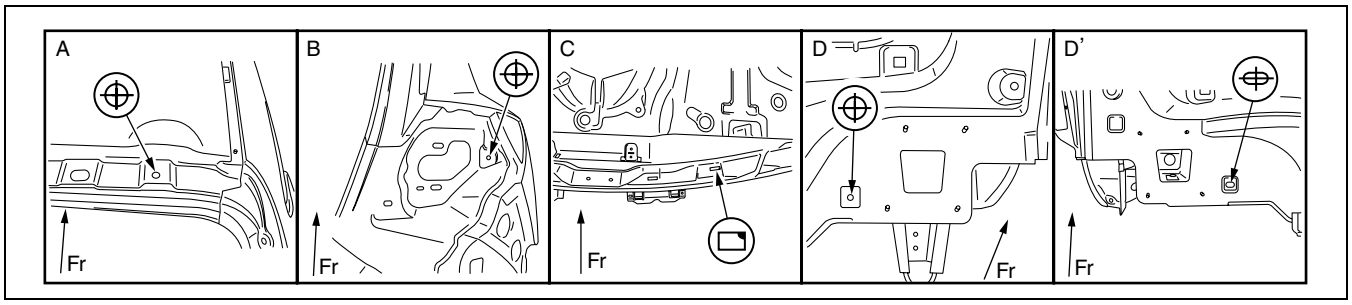
Measured location	Dimensions mm {in}
1	1,007 {39.65}
2	781 {30.75}
3	1,190 {46.85}
4	800 {31.50}
5	425 {16.73}
6	851 {33.50}

Measured location	Dimensions mm {in}
7	679 {26.73}
8	1,436 {56.54}
9	620 {24.41}
10	1,191 {46.89}
11	720 {28.35}

5HB



B3E0980B030



B3E0980B031

Measured location	Dimensions mm {in}
1	700 {27.56}
2	871 {34.29}
3	1,114 {43.86}
4	688 {27.09}

Measured location	Dimensions mm {in}
5	1,474 {58.03}
6	596 {23.46}
7	1,190 {46.85}
8	720 {28.35}

09–80E BODY STRUCTURE [PLASTIC BODY PARTS]

PLASTIC PARTS HEAT RESISTING TEMPERATURE

C3U098050000B01

Part Name			Code	Material Name	Heat resisting Temperature°C{F°}
WINDSHIELD MOULDING			PVC	POLYVINYLCHLORIDE	95 {203}
COWL GRILLE			PP	POLYPROPYLENE	95 {203}
FRONT COMBINATION LIGHT	LENS		PC	POLYCARBONATE	130 {266}
	HOUSING		PP	POLYPROPYLENE	90 {194}
RADIATOR GRILLE	4SD	STANDARD	AES	AES	80 {176}
		SPORT	PC/ABS	POLYCARBONATE-ABS	80 {176}
	5HB	STANDARD	AES	AES	80 {176}
		SPORT	ABS	ABS	80 {176}
FRONT BUMPER			PP	POLYPROPYLENE	100 {212}
FRONT FLAP			PE	POLYETHLENE	75 {167}
FRONT SIDE MAKER LIGHT	LENS		PMMA	ACRYLIC	75 {167}
	HOUSING		PC-PBT	POLYCARBONATE-PBT	80 {176}
OUTSIDE MIRROR	BASE		AAS	AAS	88 {190}
	OUTER PANEL		ABS	ABS	88 {190}
SIDE PROTECTOR			PVC	POLYVINYLCHLORIDE	80 {176}
SIDE STEP MOLDING			PP	POLYPROPYLENE	75 {167}
ROOF MOULDING			AES	AES	80 {176}
REAR BUMPER			PP	POLYPROPYLENE	100 {212}
REFLECTOR	LENS		PMMA	ACRYLIC	75 {167}
	HOUSING		ABS	ABS	70 {158}
REAR COMBINATION LIGHT	LENS		PMMA	ACRYLIC	80 {176}
	HOUSING		AES	AES	70 {158}
OUTER HANDLE	LEVER		PC-PBT	POLYCARBONATE-PBT	80 {176}
	BASE		PC-PET	POLYCARBONATE-PET	80 {176}
HIGH-MOUNT BRAKE LIGHT	LENS		PC	POLYCARBONATE	130 {266}
	HOUSING		PP	POLYPROPYLENE	95 {203}
LIFTGATE GARNISH			PP	POLYPROPYLENE	95 {203}
REAR SPOILER	4SD		ABS	ABS	90 {194}
	5HB	UPPER	SMC	SMC	90 {194}
		LOWER	PP	POLYPROPYLENE	90 {194}
BELTLINE MOLDING			AES	AES	90 {194}
SHROUD PANEL			PP	POLYPROPYLENE	100 {212}

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

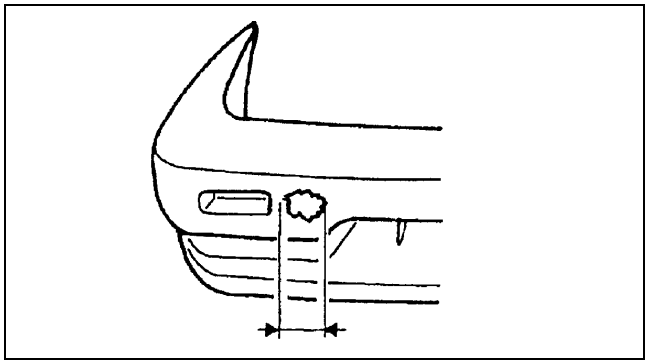
REPAIRABLE RANGE OF POLYPROPYLENE BUMPERS

C3U098050000B02

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.

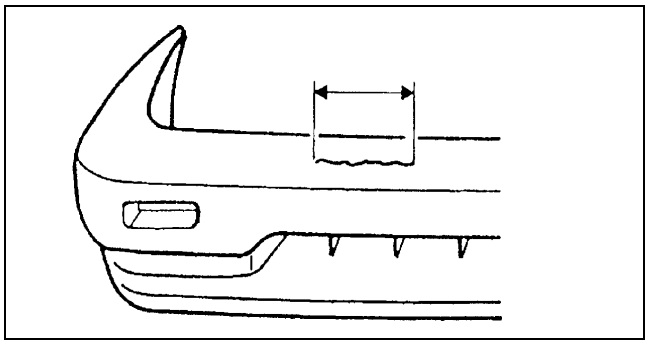
Repairable Bumpers

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



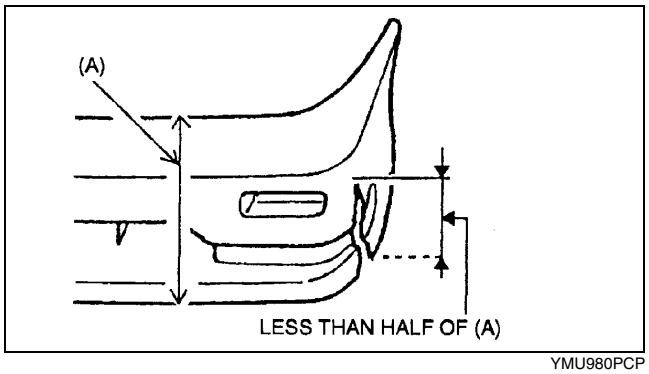
YMU980PCM

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



YMU980PCN

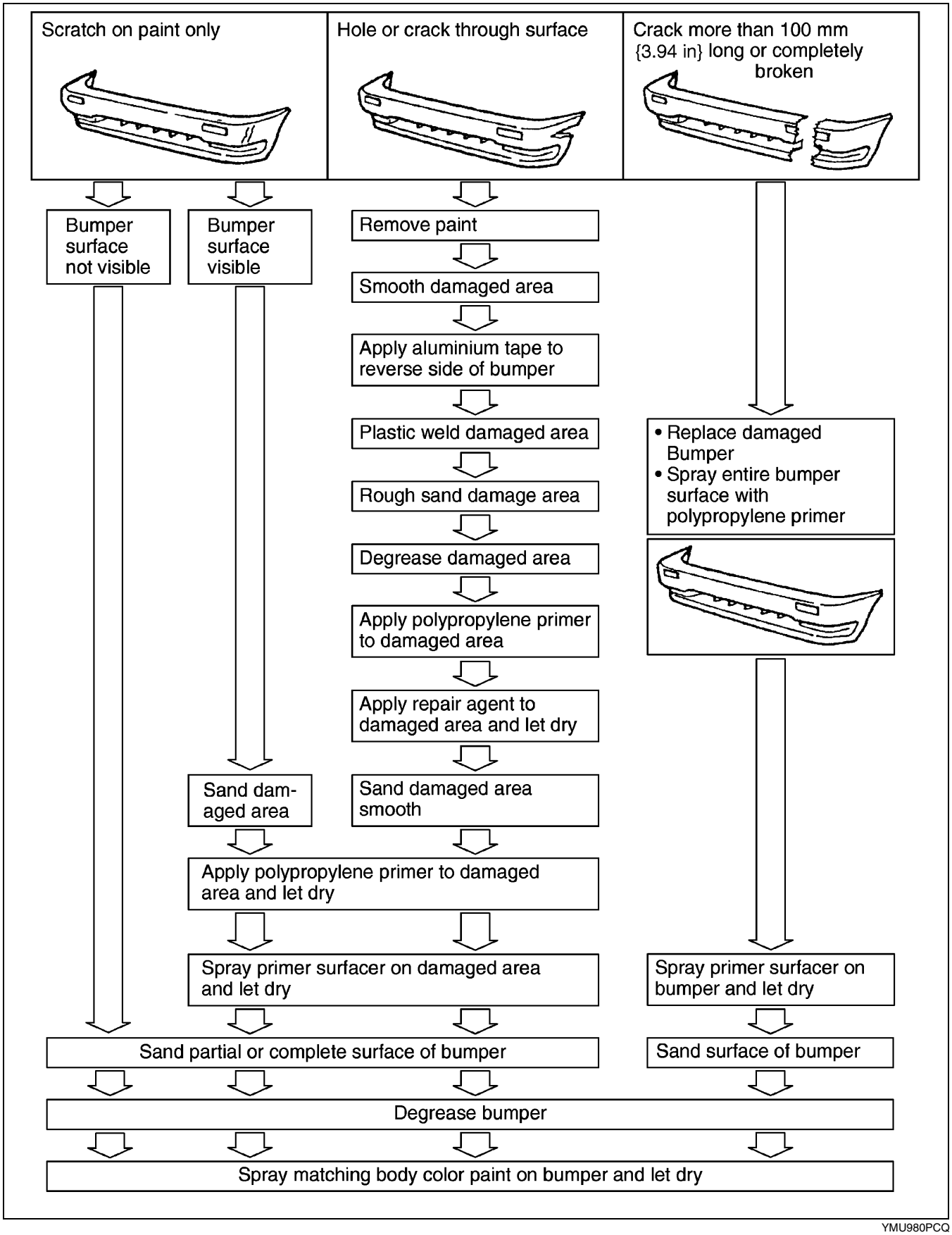
3. A bumper with a crack less than 100 mm {3.94 in} in length that is less than half of the width of the bumper.



YMU980PCP

POLYPROPYLENE BUMPER REPAIR

C3U098050000B03

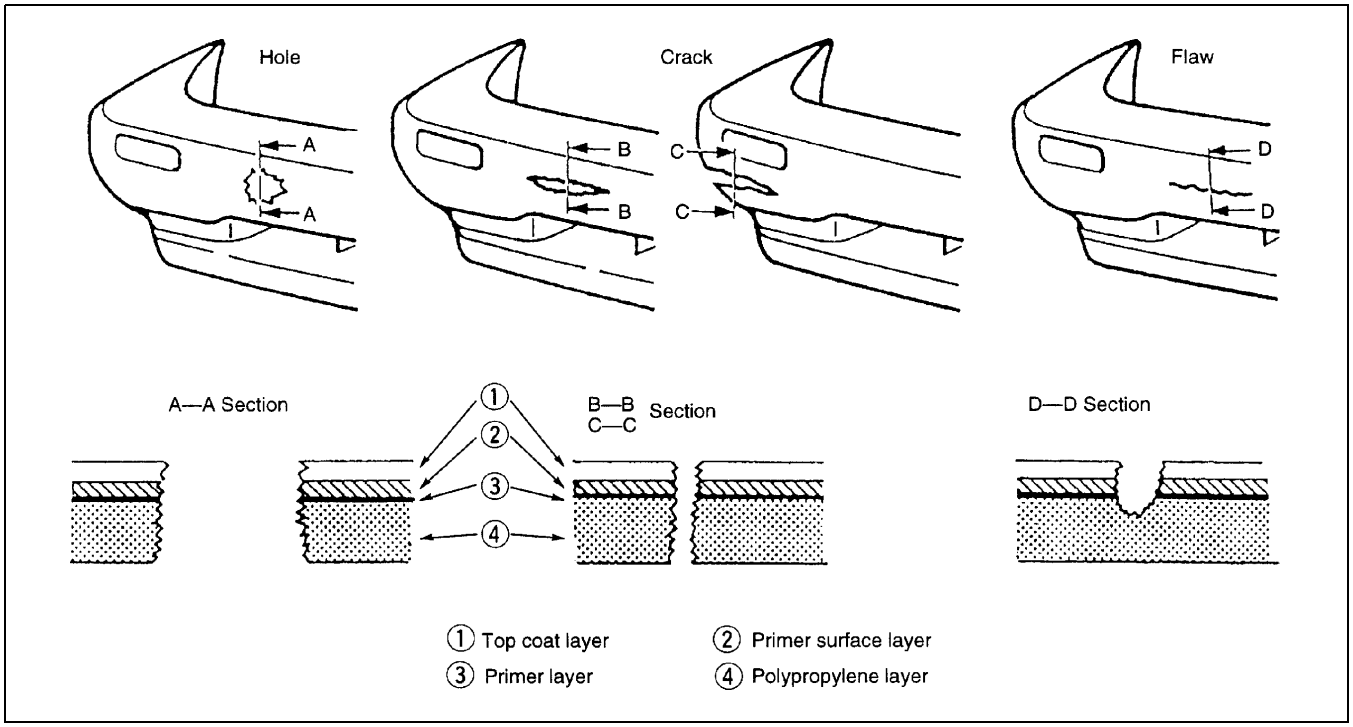


YMU980PCQ

PROCEDURE

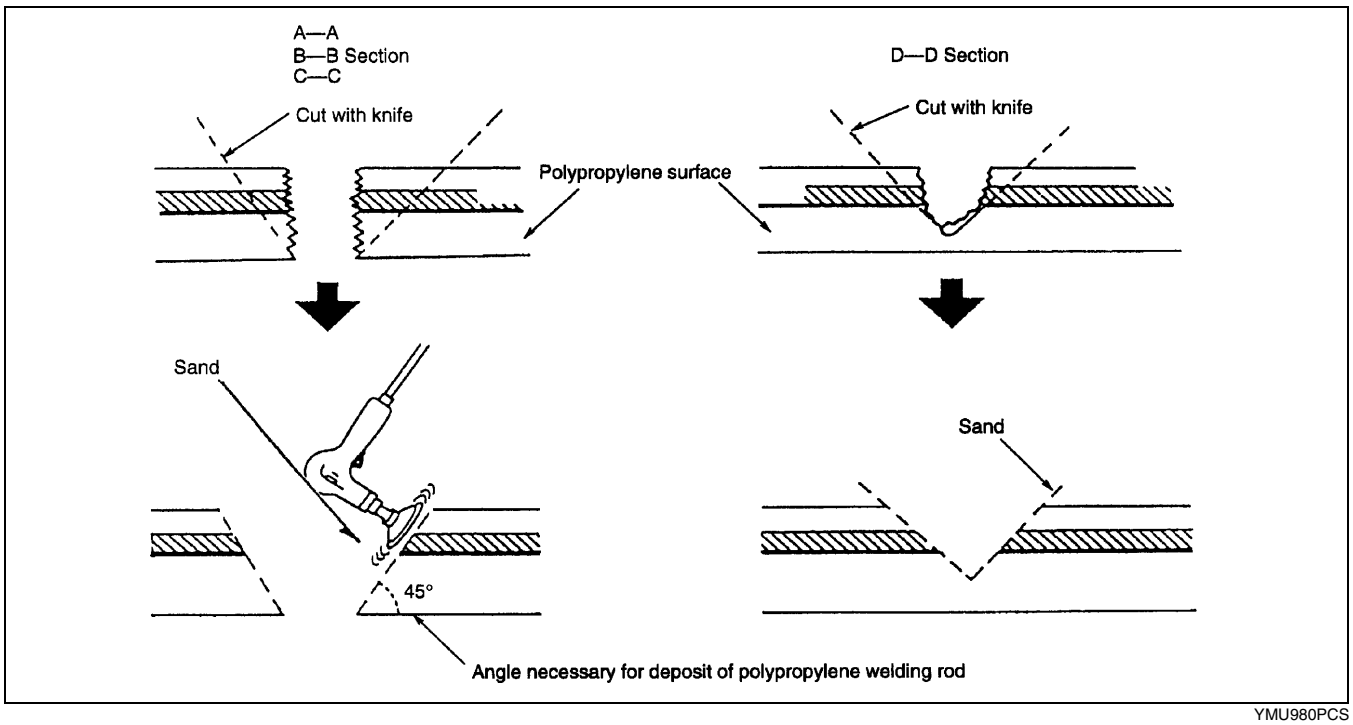
C3U098050000B04

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



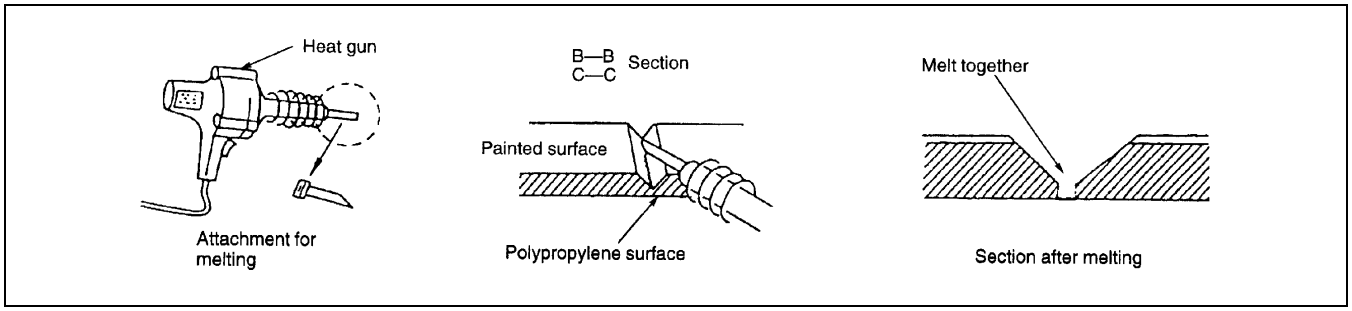
YMU980PCR

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°.



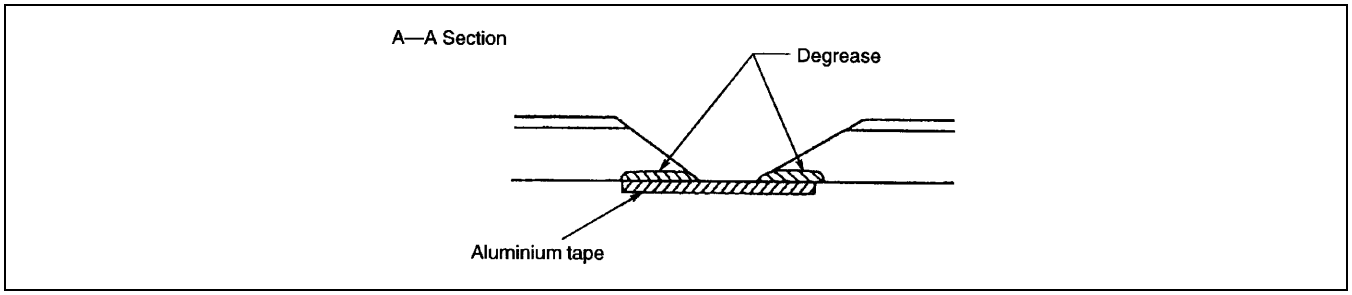
YMU980PCS

2. Weld the damaged area.
   - For repair of a cracked area, melt the crack together with a heat gun and a melting attachment.



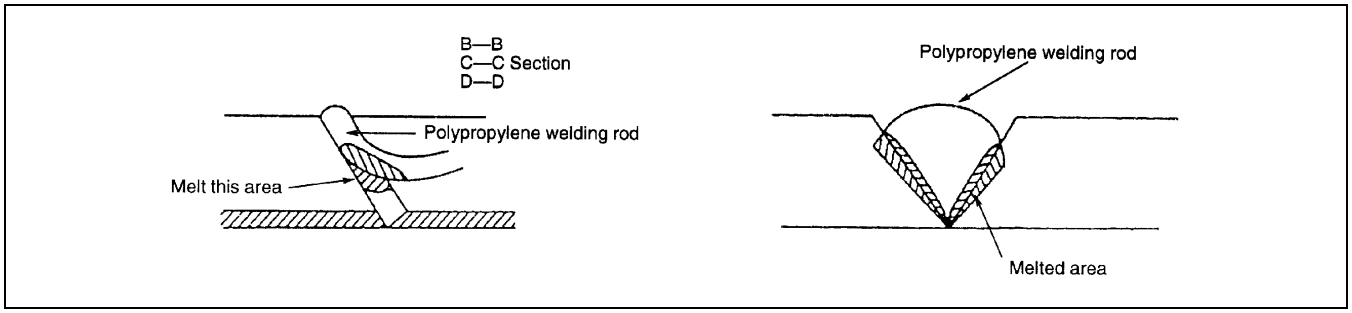
YMU980PCT

   - For repair of a hole, degrease the area on both sides of the bumper and apply aluminium tape on the reverse side of the damage area.



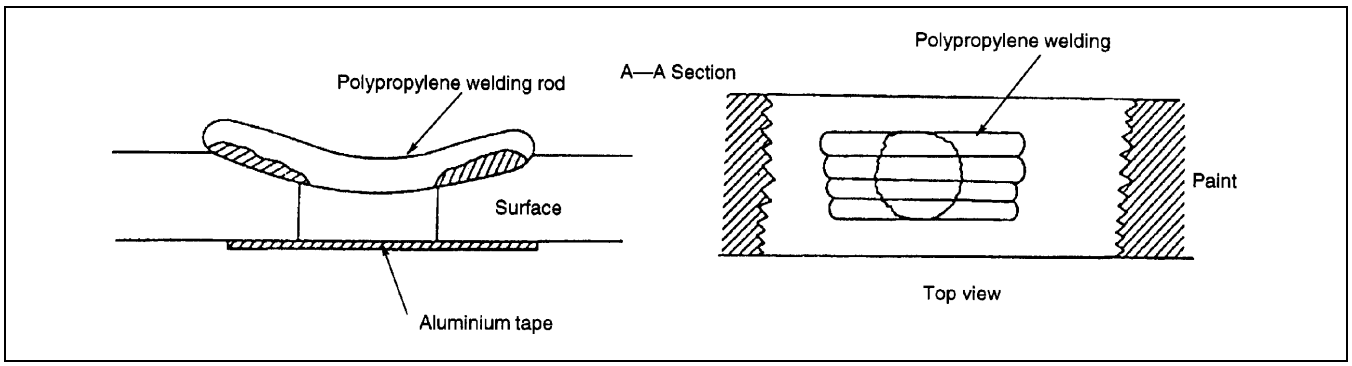
YMU980PCU

3. Melt the polypropylene welding rod with a heat gun and deposit it the cracked area.



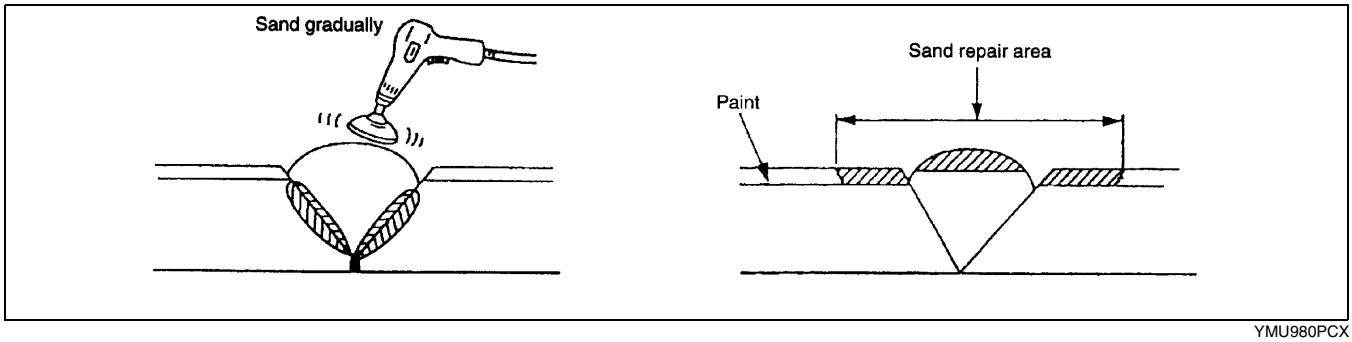
YMU980PCV

Note
- Heat the shaded area to melt it.
- Take care not to overly melt welding rod. If the part is welded with the welding rod melted like jelly, the welding strength will be reduced.
- Hold the heat gun 10—20 mm {0.39—0.79 in} from the part being welded.
- Do not move the welding rod until the welded parts cool.



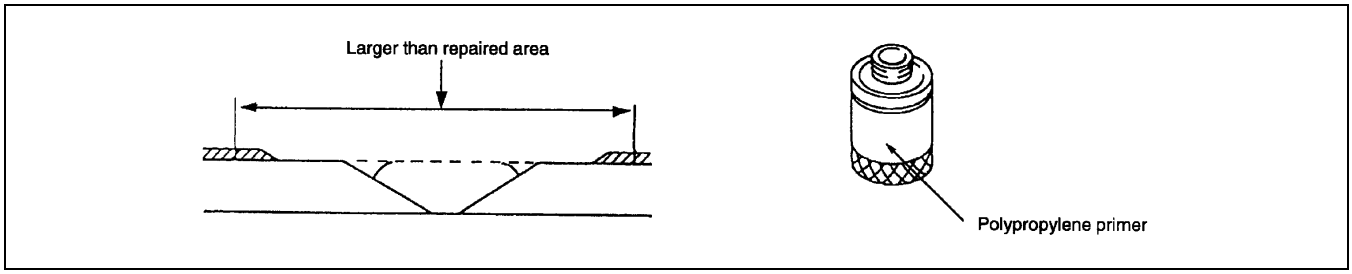
YMU980PCW

4. Sand the surface of the polypropylene gradually as it is easily melted by the abrasion heat. Sand the area to which repair agent will be applied.



YMU980PCX

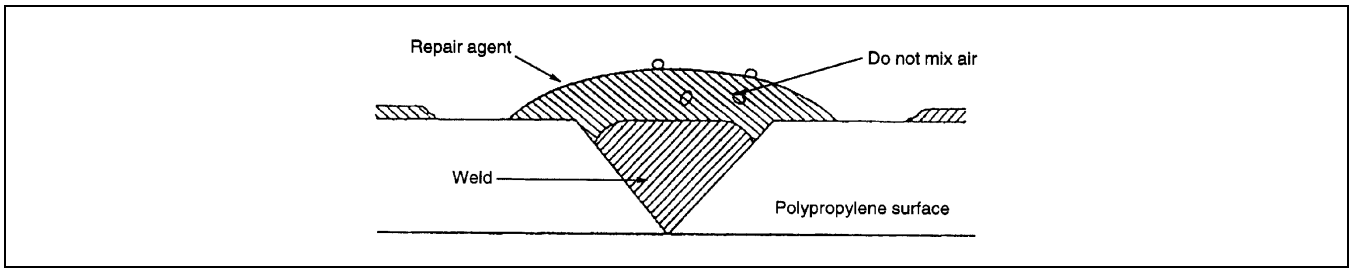
5. Uniformly apply polypropylene primer with a brush to an area larger than the repaired area. Allow to dry about 10 minutes at 20 °C {68 °F}.



YMU980PCY

6. Mix the main agent and the stiffening agent in a ratio of one to one. Apply the mixed repair agent to the damaged area.

Note
- When mixing the main and stiffening agents, take care not to allow bubbles to form.
- The repair agent hardens quickly (about 5 minutes); proceed with the work immediately after mixing the agents.
- Allow about 30 minutes to dry (20 °C {68 °F}) before sanding.

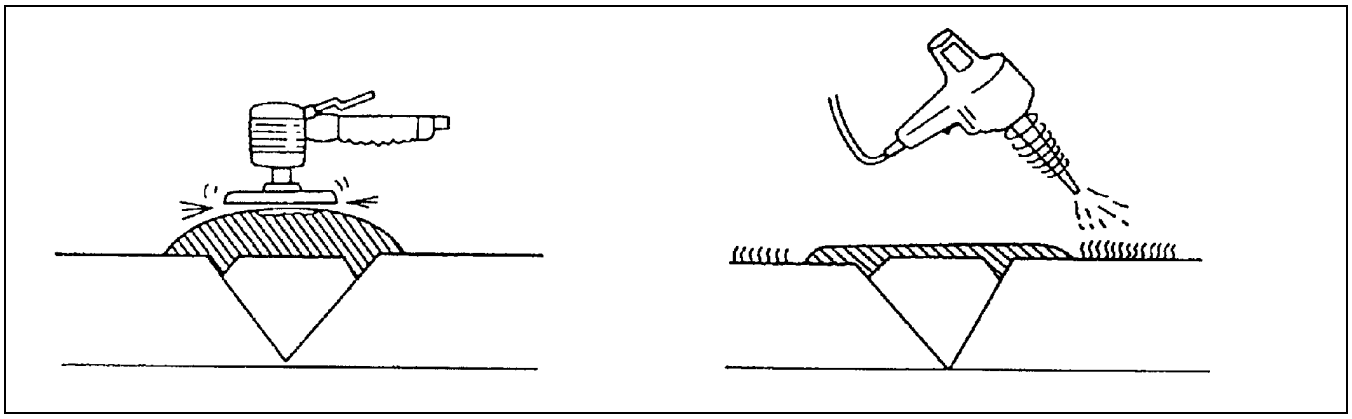


YMU980PCZ

The repair agent is a two part epoxy adhesive.
When the repair agent hardens, it will provide a good finish with the same flexibility as the polypropylens.
The repair agent for a **urethane** bumper is also a two part adhesive compound. However, this is different from that for a polypropylene bumper. If the incorrect repair agent is used, the repair will be faulty.

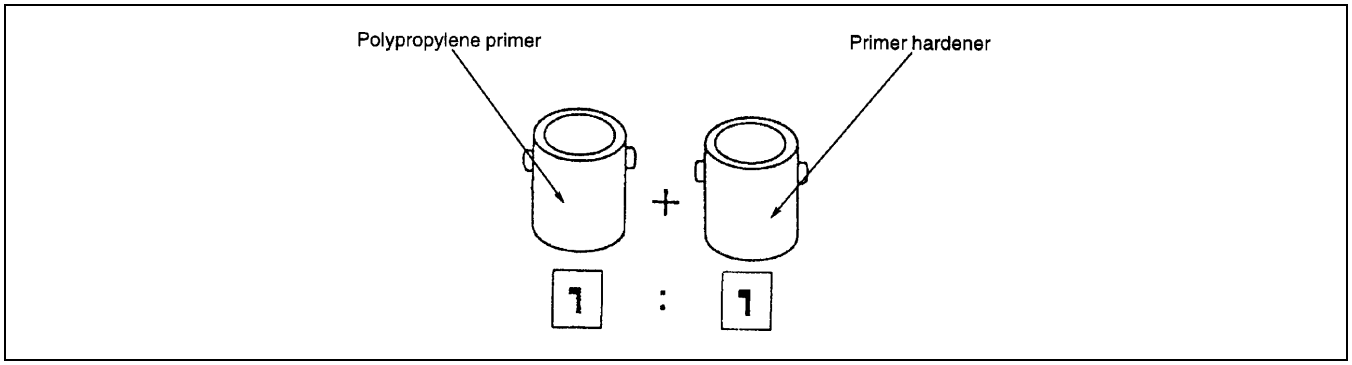
7. Sand the area with #180—240 sandpaper.

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.



YMU980PD0

8. Degrease the painted surface.
9. Mix the primer and the hardener at a ratio of one to one. Apply the primer to the repaired area and the surface of the bumper with a brush or spray.



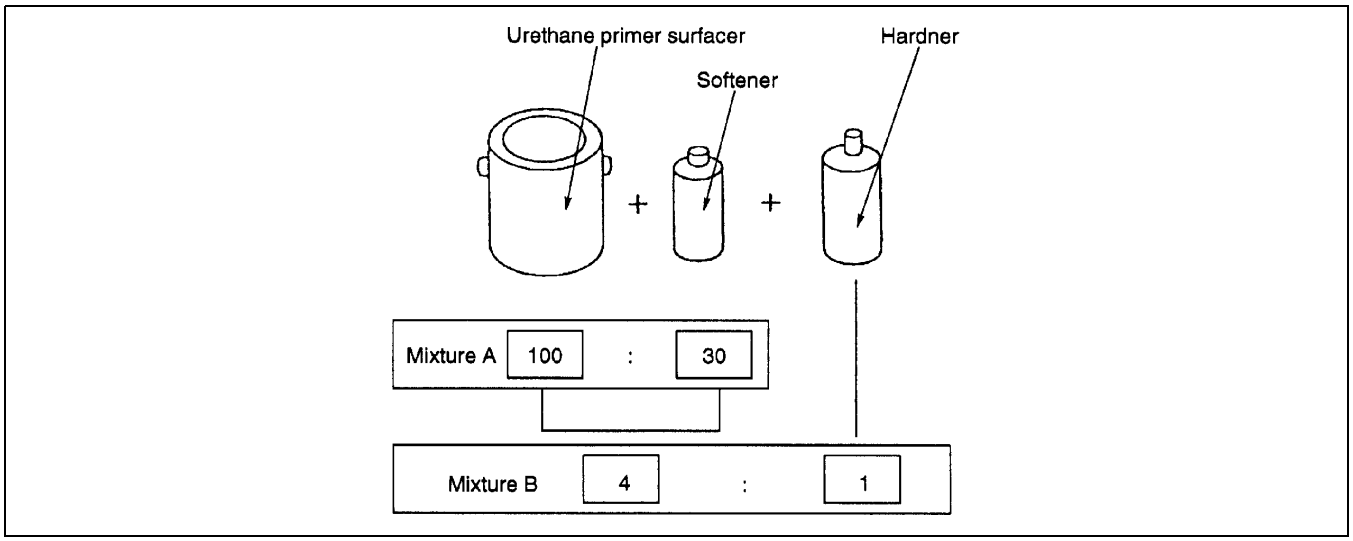
YMU980PD1

Use the primer within 16 hours after it is mixed.

Note
- Polypropylene primer will dissolve even after drying if it is wiped with solvent. Use only water to clean around the primer.

10. Allow the part to dry.

11. Add the softener to the urethane primer surfacer and spray it on the repaired area.
    a. Mixing method
       Urethane primer surfacer + Softener ..... Mixture A
       Mixture A + hardener ..... Mixture B
       Dilute mixture B with thinner to spray on bumper
    b. Viscosity
       14—16 seconds/viscosimeter 20 °C {68 °F}



YMU980PD2

Note
- Mix the solutions at the specified ratio.

    c. Spray pressure
       300—400 kPa {3—4 kg/cm^2, 43—57 psi}
    d. Standard film thickness
       30—40 μ
    e. Spray method
       Spot-spray primer surfacer on bumper three of four times
12. Air drying 20 °C {68 °F} — 8 hours minimum.
    Forced drying 60 °C {140 °F} — 1 hour
13. Lightly sand the complete surface of the bumper with #400—#600 sandpaper. Do not expose the surface of the polypropylene. (Wet or dry sanding is acceptable.)
14. Wipe the complete surface of the bumper with degreasing agent. Quickly wipe the surface with a clean rag to degrease it.
15. Apply a matching coat of body color to the polypropylene 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.

16. 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 cause bubbles in the top coat.