

A  
B  
C  
D  
E

# SECTION **BRM**

## BODY REPAIR

### CONTENTS

<p><b>FEATURES OF NEW MODEL</b> ..... 2</p> <p><b>BODY EXTERIOR PAINT COLOR</b> ..... 2</p> <p style="padding-left: 20px;">Body Exterior Paint Color .....2</p> <p><b>PRECAUTION</b> ..... 3</p> <p><b>HANDLING PRECAUTIONS</b> ..... 3</p> <p style="padding-left: 20px;">Precautions For Plastics .....3</p> <p><b>REMOVAL AND INSTALLATION</b> ..... 6</p> <p><b>BODY COMPONENT PARTS</b> ..... 6</p> <p style="padding-left: 20px;">Underbody Component Parts .....6</p> <p style="padding-left: 20px;">Body Component Parts .....8</p> <p><b>CORROSION PROTECTION</b> .....10</p> <p style="padding-left: 20px;">Description ..... 10</p> <p style="padding-left: 20px;">Anti-corrosive Wax ..... 10</p> <p style="padding-left: 20px;">Undercoating ..... 11</p> <p style="padding-left: 20px;">Stone Guard Coat ..... 12</p> <p><b>BODY SEALING</b> .....14</p> <p style="padding-left: 20px;">Description ..... 14</p> <p><b>BODY CONSTRUCTION</b> .....17</p> <p style="padding-left: 20px;">Body Construction ..... 17</p>	<p><b>BODY ALIGNMENT</b> .....19</p> <p style="padding-left: 20px;">Body Center Marks .....19</p> <p style="padding-left: 20px;">Description .....20</p> <p style="padding-left: 20px;">Engine Compartment .....20</p> <p style="padding-left: 20px;">Underbody .....23</p> <p style="padding-left: 20px;">Passenger Compartment .....26</p> <p style="padding-left: 20px;">Rear Body .....28</p> <p><b>REPAIRING HIGH STRENGTH STEEL</b> .....30</p> <p style="padding-left: 20px;">High Strength Steel (HSS) .....30</p> <p><b>REPLACEMENT OPERATIONS</b> .....33</p> <p style="padding-left: 20px;">Description .....33</p> <p style="padding-left: 20px;">Hoodledge .....36</p> <p style="padding-left: 20px;">Hoodledge (Partial Replacement) .....38</p> <p style="padding-left: 20px;">Front Side Member .....40</p> <p style="padding-left: 20px;">Front Side Member (Partial Replacement) .....44</p> <p style="padding-left: 20px;">Front Pillar .....45</p> <p style="padding-left: 20px;">Center Pillar .....48</p> <p style="padding-left: 20px;">Outer Sill .....52</p> <p style="padding-left: 20px;">Rear Fender .....53</p> <p style="padding-left: 20px;">Rear Panel .....57</p> <p style="padding-left: 20px;">Rear Floor Rear .....57</p> <p style="padding-left: 20px;">Rear Side Member Extension .....58</p>
--	---

BRM

P

# BODY EXTERIOR PAINT COLOR

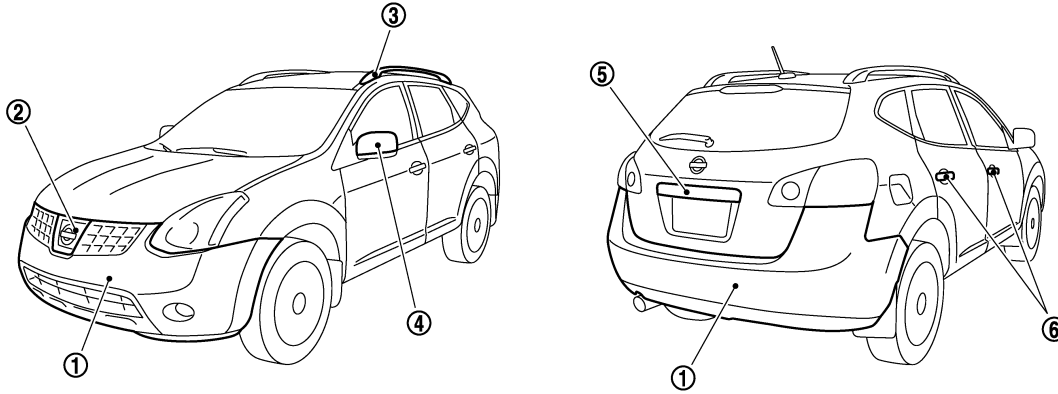
< FEATURES OF NEW MODEL >

## FEATURES OF NEW MODEL

### BODY EXTERIOR PAINT COLOR

#### Body Exterior Paint Color

INFOID:000000004231308



JSKIA0435GB

Component		Color code	BA33	BA55*	BB53	BKH3	BK23	BK51	BK55	BQX1	
		Description	Red	Orange	Blue	Black	Silver	Gray	Brownish Gray	White	
		Paint type <sup>Note</sup>	PM	M	PM	2S	M	M	PM	3P	
		Hard clear coat	For Mexico	-	-	-	-	-	-	-	-
Except for Mexico	×		-	×	×	-	-	×	-		
1	Bumper fascia	Body color	BA33	BA55	BB53	BKH3	BK23	BK51	BK55	BQX1	
2	Front bumper molding	Chromium plate	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr	
3	Roof rack	Silver	G08-2	G08-2	G08-2	G08-2	G08-2	G08-2	G08-2	G08-2	
4	Door outside mirror	Cover	Body color	BA33	BA55	BB53	BKH3	BK23	BK51	BK55	BQX1
5	Back door finisher	Body color	BA33	BA55	BB53	BKH3	BK23	BK51	BK55	BQX1	
6	Door outside handle	Body color	BA33	BA55	BB53	BKH3	BK23	BK51	BK55	BQX1	

**NOTE:**

- 2S: Solid + Clear
- M: Metallic
- P: 2-Coat pearl
- 3P: 3-Coat pearl
- FPM: Iron oxide pearl
- RPM: Multi flex color
- TM: Micro titanium metallic
- PM: Pearl metallic
- \*: Canada and Mexico only

# HANDLING PRECAUTIONS

< PRECAUTION >

## PRECAUTION

### HANDLING PRECAUTIONS

#### Precautions For Plastics

INFOID:000000004231309

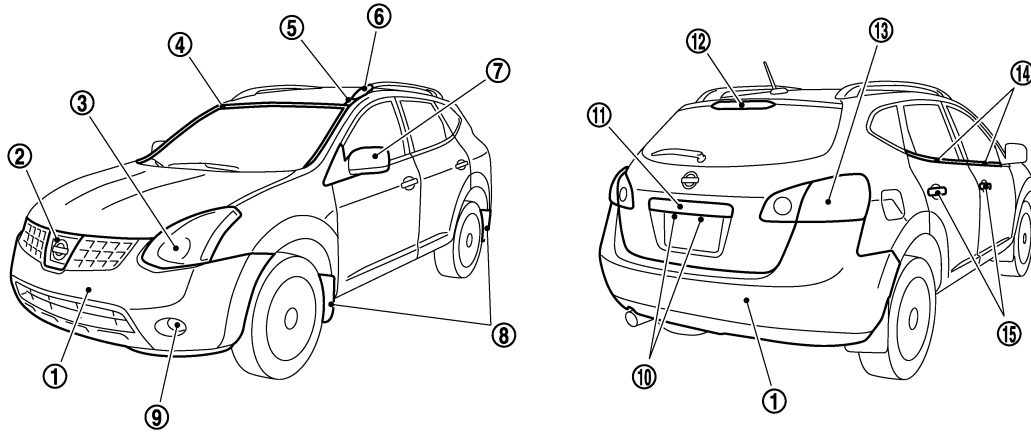
Abbreviation	Material name	Heat resisting temperature °C (°F)	Resistance to gasoline and solvents	Other cautions
PE	Polyethylene	60 (140)	Gasoline and most solvents are harmless if applied for a very short time (wipe up quickly).	Flammable
ABS	Acrylonitrile Butadiene Styrene	80 (176)	Avoid gasoline and solvents.	—
EPM/EPDM	Ethylene Propylene (Diene) copolymer	80 (176)	Gasoline and most solvents are harmless if applied for a very short time (wipe up quickly).	Flammable
PS	Polystyrene	80 (176)	Avoid solvents.	Flammable
PVC	Poly Vinyl Chloride	80 (176)	Gasoline and most solvents are harmless if applied for a very short time (wipe up quickly).	Poison gas is emitted when burned.
TPO	Thermoplastic Olefine	80 (176)	Same as above.	Flammable
AAS	Acrylonitrile Acrylic Styrene	85 (185)	Avoid gasoline and solvents.	—
PMMA	Poly Methyl Methacrylate	85 (185)	Same as above.	—
EVAC	Ethylene Vinyl Acetate	90 (194)	Avoid gasoline and solvents.	—
PP	Polypropylene	90 (194)	Gasoline and most solvents are harmless if applied for a very short time (wipe up quickly).	Flammable, avoid battery acid.
PUR	Polyurethane	90 (194)	Avoid gasoline and solvents.	—
UP	Unsaturated Polyester	90 (194)	Same as above.	Flammable
ASA	Acrylonitrile Styrene Acrylate	100 (212)	Same as above.	Flammable
PPE	Poly Phenylene Ether	110 (230)	Same as above.	—
TPU	Thermoplastic Urethane	110 (230)	Same as above.	—
PBT+PC	Poly Butylene Terephthalate + Polycarbonate	120 (248)	Same as above.	Flammable
PC	Polycarbonate	120 (248)	Same as above.	—
POM	Poly Oxymethylene	120 (248)	Same as above.	Avoid battery acid.
PA	Polyamide	140 (284)	Same as above.	Avoid immersing in water.
PBT	Poly Butylene Terephthalate	140 (284)	Same as above.	—
PAR	Polyarylate	180 (356)	Same as above.	—
PET	Polyester	180 (356)	Same as above.	—
PEI	Polyetherimide	200 (392)	Same as above.	—

1. When repairing and painting a portion of the body adjacent to plastic parts, consider their characteristics (influence of heat and solvent) and remove them if necessary or take suitable measures to protect them.
2. Plastic parts should be repaired and painted using methods suiting the materials' characteristics.

#### LOCATION OF PLASTIC PARTS

# HANDLING PRECAUTIONS

< PRECAUTION >

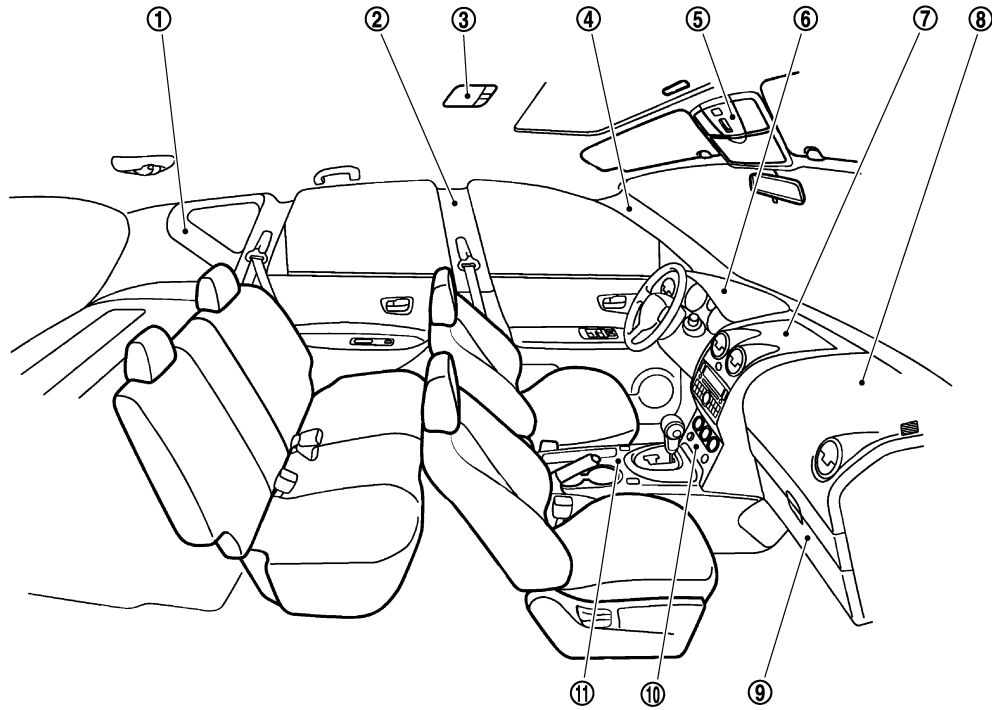


JSKIA0436GB

Component		Material	Component		Material		
1	Bumper fascia	PP + EPM	9	Front fog lamp	Lens	Glass	
2	Front bumper molding	ABS			Housing	PBT + ASA + Glass fiber	
3	Front combination lamp	Lens	10	License plate lamp	Lens	PC	
		Housing			PP	Housing	PC
4	Windshield molding	PVC	11	Back door finisher	ABS		
5	Roof side molding	PVC + Stainless	12	High mount stop lamp	Lens	PMMA	
6	Roof rack cover	ABS			Housing	ABS	
7	Door outside mirror	Cover	13	Rear combination lamp	Lens	PMMA	
		Housing			PP	Housing	ASA
		Base			PA	14 Door outside molding	
8	Mudguard	PP + EPDM	15	Door outside handle	PC + PET		

# HANDLING PRECAUTIONS

< PRECAUTION >



JSKIA0437GB

Component		Material	Component		Material		
1	Luggage side finisher	PP	7	Cluster lid C	PC + ABS		
2	Center pillar garnish	PP	8	Instrument panel	Skin	TPO	
3	Room lamp	Lens			PC	Pad	PUR
		Housing			PA	Core	PP
4	Front pillar garnish	PP	9	Glove box	PP		
5	Map lamp	Lens	PC	10	Heater control finisher	PP	
		Housing	PP	11	Center console	PP	
6	Meter cover	PP					

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

**BRM**

# BODY COMPONENT PARTS

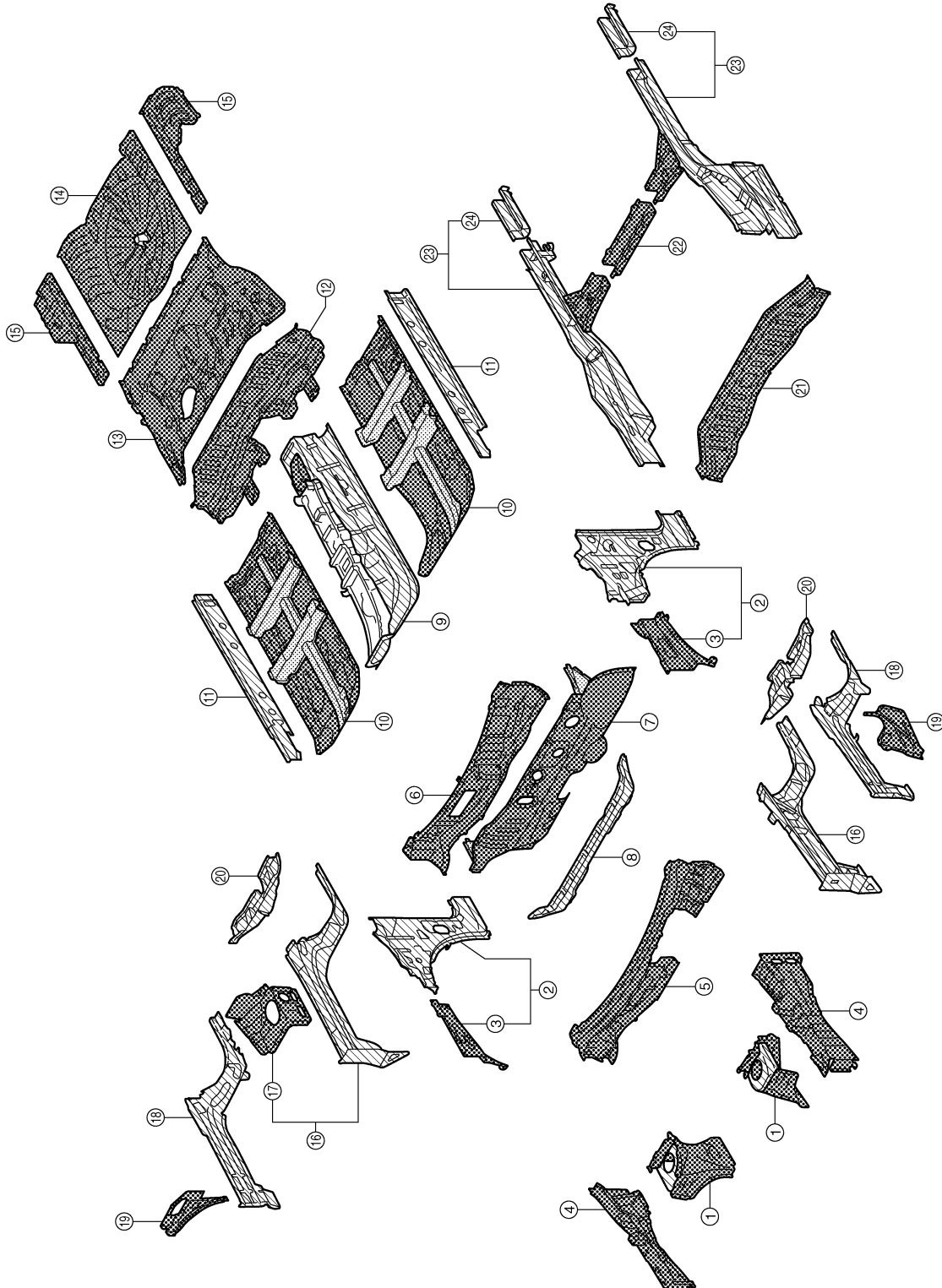
< REMOVAL AND INSTALLATION >

## REMOVAL AND INSTALLATION

### BODY COMPONENT PARTS

#### Underbody Component Parts

INFOID:000000004231310




JSKIA0438GB


# BODY COMPONENT PARTS


## < REMOVAL AND INSTALLATION >

---

- |                                      |                                       |  |   |
|--------------------------------------|---------------------------------------|--|---|
| 1. Front strut housing               | 2. Side dash                          | 3. Upper hoodledge                           | A |
| 4. Hoodledge reinforcement           | 5. Cowl top                           | 6. Upper dash                                |   |
| 7. Lower dash                        | 8. Lower dash crossmember assembly    | 9. Center front floor                        |   |
| 10. Front floor                      | 11. Inner sill                        | 12. Rear floor front extension               | B |
| 13. Rear floor front                 | 14. Rear floor rear                   | 15. Rear floor side                          |   |
| 16. Front side member                | 17. Engine mounting member bracket    | 18. Front side member closing plate assembly | C |
| 19. Hoodledge connector assembly     | 20. Front suspension mounting bracket | 21. Rear seat crossmember                    |   |
| 22. Center rear crossmember assembly | 23. Rear side member assembly         | 24. Rear side member extension               | D |

 : Both sided anti-corrosive precoated steel portions

 : High strength steel (HSS) portions

 : Both sided anti-corrosive steel and HSS portions

D

E

F

G

H

I

J

**BRM**

L

M

N

O

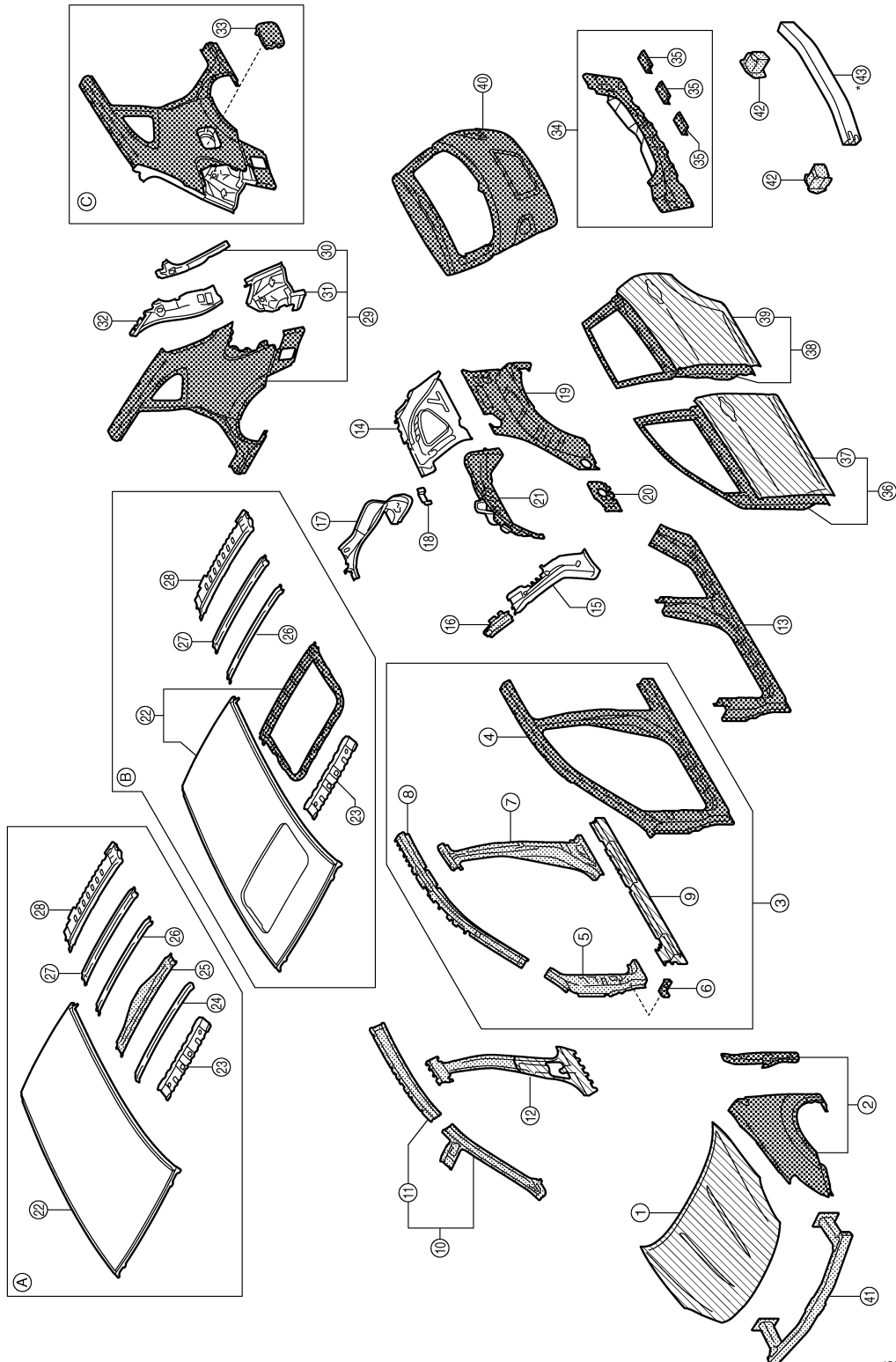
P

# BODY COMPONENT PARTS

< REMOVAL AND INSTALLATION >

## Body Component Parts

INFOID:000000004231311



JSKIA0439GB


- |  |   |  |
|--|---|--|
| 1. Hood                                | 2. Front fender (RH & LH)                     | 3. Side body assembly (RH & LH)            |
| 4. Outer front side body (RH & LH)     | 5. Lower front pillar hinge brace (RH & LH)   | 6. Front fender bracket assembly (RH & LH) |
| 7. Lower center pillar brace (RH & LH) | 8. Outer front pillar reinforcement (RH & LH) | 9. Outer sill reinforcement (RH & LH)      |





# BODY COMPONENT PARTS

## < REMOVAL AND INSTALLATION >

10. Upper inner front pillar (RH & LH)	11. Inner side roof rail (RH & LH)	12. Inner center pillar (RH & LH)	A
13. Outer sill (RH & LH)	14. Inner rear pillar (RH & LH)	15. Inner rear pillar reinforcement (RH & LH)	
16. Rear pillar seat belt anchor (RH & LH)	17. Back pillar main assembly (RH & LH)	18. Trim mounting bracket (RH & LH)	
19. Outer rear wheelhouse (RH & LH)	20. Outer rear wheelhouse extension (RH & LH)	21. Inner rear wheelhouse (RH & LH)	C
22. Roof	23. Front roof rail	24. Roof bow No. 1	
25. Roof bow No. 2	26. Roof bow No. 3	27. Roof bow No. 4	D
28. Rear roof rail	29. Rear fender assembly (RH & LH)	30. Outer back pillar (RH & LH)	
31. Rear combination lamp base (RH & LH)	32. Back pillar reinforcement assembly (RH & LH)	33. Fuel filler lid	E
34. Rear panel assembly	35. Upper rear bumper retainer	36. Front door assembly (RH & LH)	
37. Outer front door panel (RH & LH)	38. Rear door assembly (RH & LH)	39. Outer rear door panel (RH & LH)	F
40. Back door	41. Front bumper reinforcement assembly	42. Rear bumper stay	
43. Inner center rear bumper reinforcement			G
A. Standard roof	B. With sunroof	C. RH side	

 : Both sided anti-corrosive precoated steel portions

 : High strength steel (HSS) portions

 : Both sided anti-corrosive steel and HSS portions

\* : Aluminum portion

BRM

L

M

N

O

P

# CORROSION PROTECTION

< REMOVAL AND INSTALLATION >

## CORROSION PROTECTION

### Description

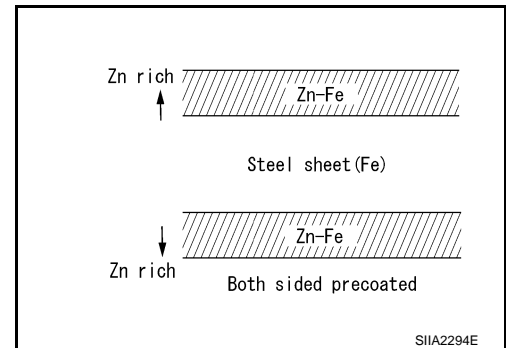
INFOID:000000004231312

To provide improved corrosion prevention, the following anti-corrosive measures have been implemented in NISSAN production plants. When repairing or replacing body panels, it is necessary to use the same anti-corrosive measures.

#### Anti-Corrosive Precoated Steel (Galvannealed Steel)

To improve repairability and corrosion resistance, a new type of anti-corrosive precoated steel sheet has been adopted replacing conventional zinc-coated steel sheet.

Galvannealed steel is electroplated and heated to form Zinc-iron alloy, which provides excellent and long term corrosion resistance with cationic electrodeposition primer.



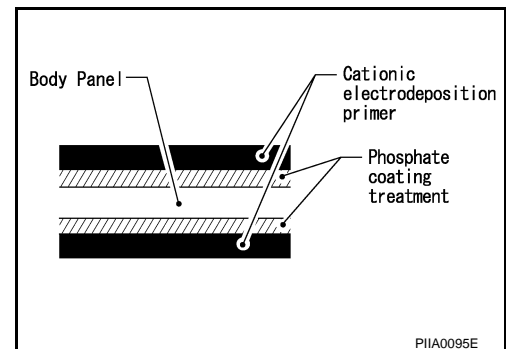
Nissan Genuine Service Parts are fabricated from galvannealed steel. Therefore, it is recommended that GENUINE NISSAN PARTS or equivalent be used for panel replacement to maintain the anti-corrosive performance built into the vehicle at the factory.

#### Phosphate Coating Treatment and Cationic Electrodeposition Primer

A phosphate coating treatment and a cationic electrodeposition primer, which provide excellent corrosion protection, are employed on all body components.

#### **CAUTION:**

**Confine paint removal during welding operations to an absolute minimum.**



Nissan Genuine Service Parts are also treated in the same manner. Therefore, it is recommended that GENUINE NISSAN PARTS or an equivalent be used for panel replacement to maintain anti-corrosive performance built into the vehicle at the factory.

#### Anti-corrosive Wax

INFOID:000000004231313

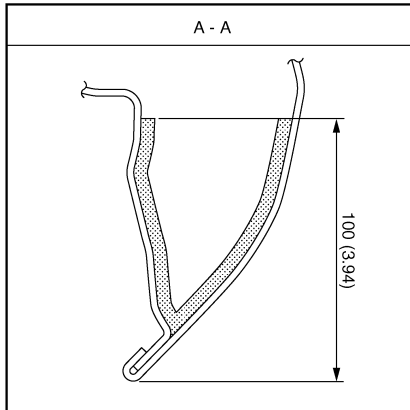
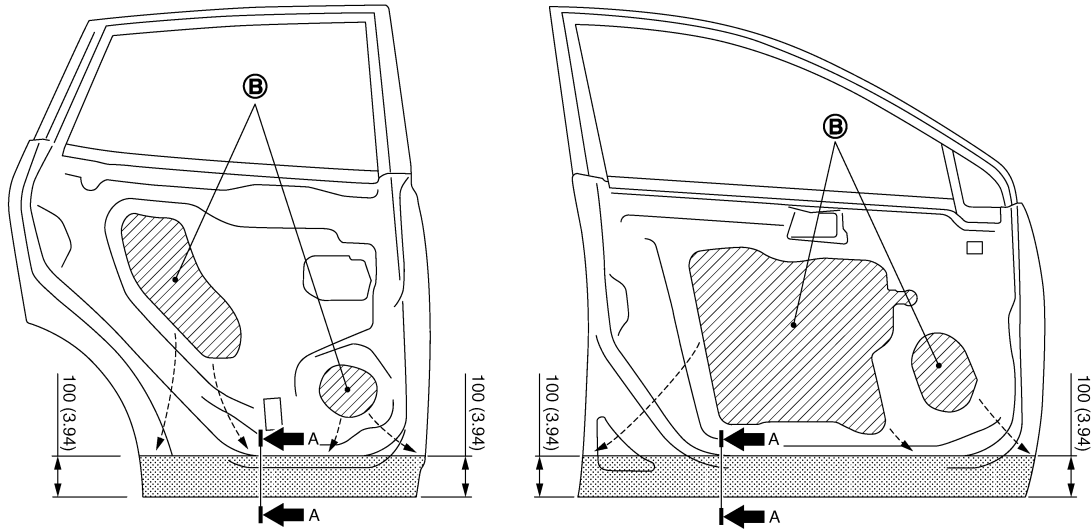
To improve corrosion resistance, anti-corrosive wax is applied inside the body sill and inside other closed sections. Accordingly, when replacing these parts, be sure to apply anti-corrosive wax to the appropriate areas of the new parts. Select an excellent anti-corrosive wax which will penetrate after application and has a long shelf life.

#### DOOR


# CORROSION PROTECTION

## < REMOVAL AND INSTALLATION >

Unit : mm (in)



A. Nozzle insert hole

 : Anti-corrosive wax coated portions

### Undercoating

INFOID:000000004231314

The underside of the floor and wheelhouse are undercoated to prevent rust, vibration, noise and stone chipping. Therefore, when such a panel is replaced or repaired, apply undercoating to that part. Use an undercoating which is rust preventive, soundproof, vibration-proof, shock-resistant, adhesive, and durable.

### Precautions in Undercoating

1. Do not apply undercoating to any place unless specified (such as the areas above the muffler and three way catalyst which are subjected to heat).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O

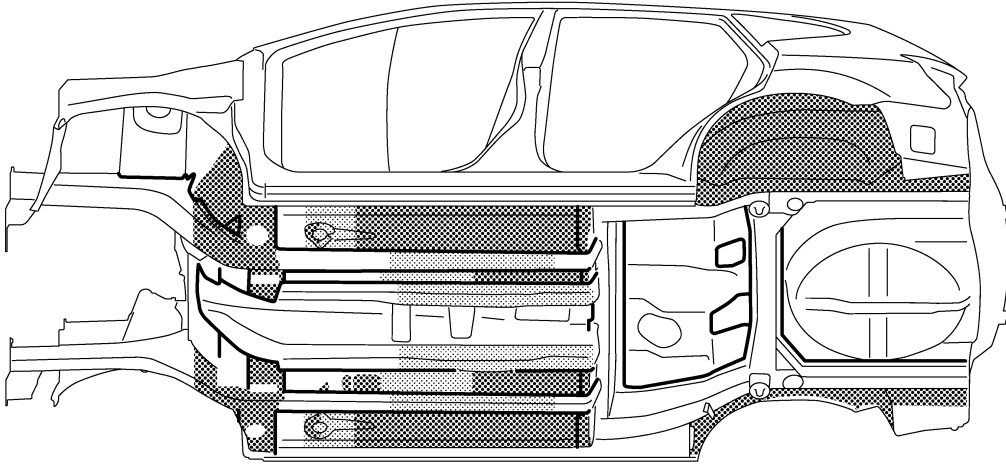
BRM

# CORROSION PROTECTION


## < REMOVAL AND INSTALLATION >


---

2. Do not undercoat the exhaust pipe or other parts which become hot.
3. Do not undercoat rotating parts.
4. Apply bitumen wax after applying undercoating.
5. After putting seal on the vehicle, put undercoating on it.



JSKIA0441GB

 : Undercoated portions (for all destination)

 : Undercoated portions (for Mexico)

 : Sealed portions

## Stone Guard Coat

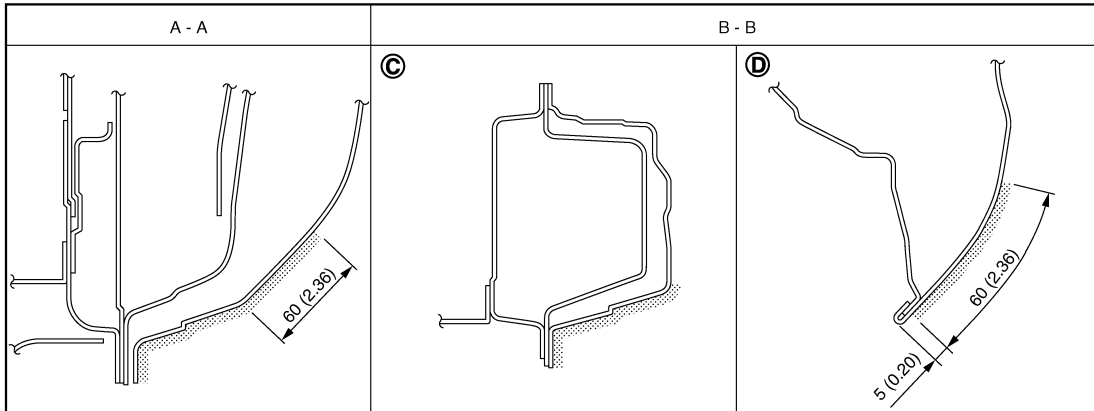
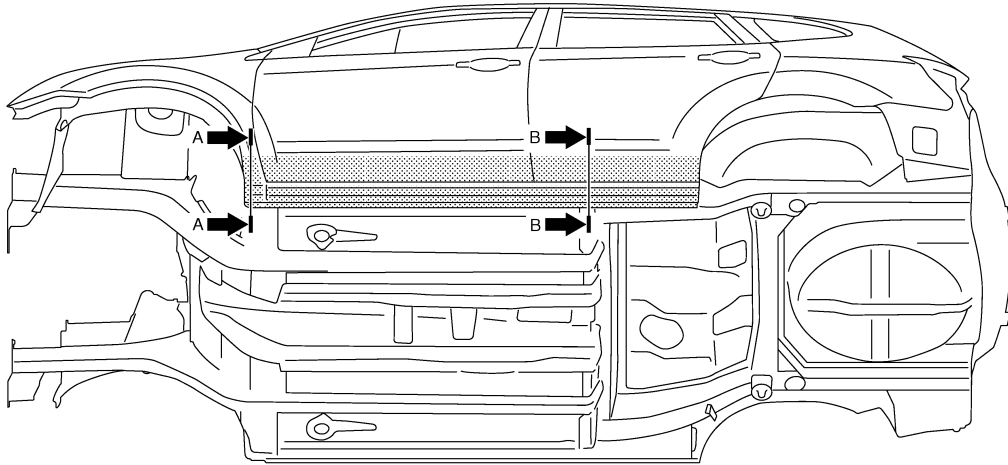
INFOID:000000004231315

To prevent damage caused by stones, the lower outer body panel (fender, door, etc.) have an additional layer of Stone Guard Coating over the ED primer coating. When replacing or repairing these panels, apply Stone Guard coating to the same portions as before. Use a coating which is rust preventive, durable, shock-resistant and has a long shelf life.


# CORROSION PROTECTION

## < REMOVAL AND INSTALLATION >

Unit : mm (in)



JSKIA0442GB

 : Stone guard coated portions

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
L  
M  
N  
O  
P

BRM

# BODY SEALING

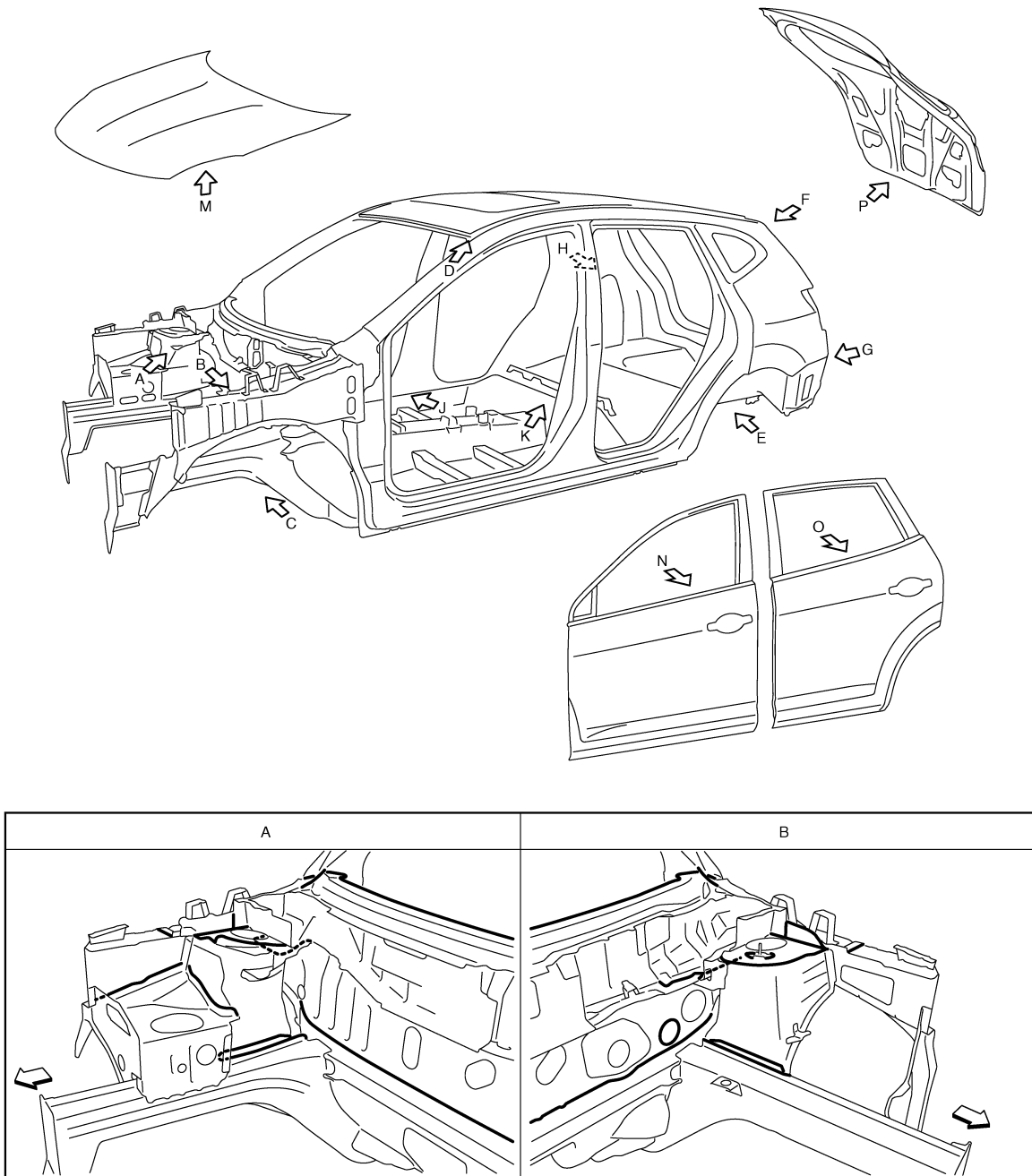
< REMOVAL AND INSTALLATION >

## BODY SEALING

### Description

INFOID:000000004231316

The following figure shows the areas which are sealed at the factory. Sealant which has been applied to these areas should be smooth and free from cuts or gaps. Care should be taken not to apply an excess amount of sealant and not to allow other unaffected parts to come into contact with the sealant.

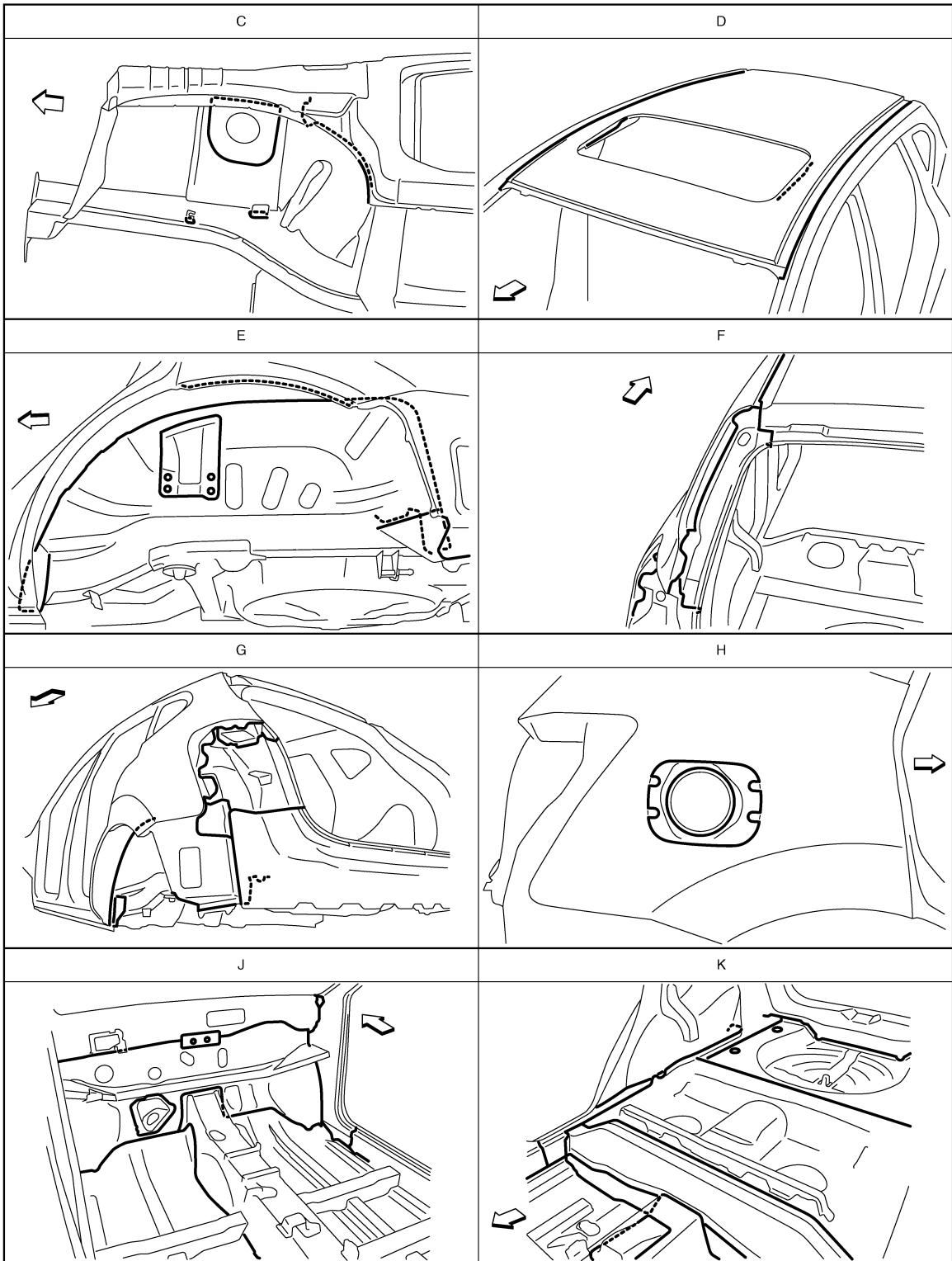


JSKIA0443GB

- ← : Vehicle front
- : Sealed portions

# BODY SEALING

## < REMOVAL AND INSTALLATION >



JSKIA0444GB

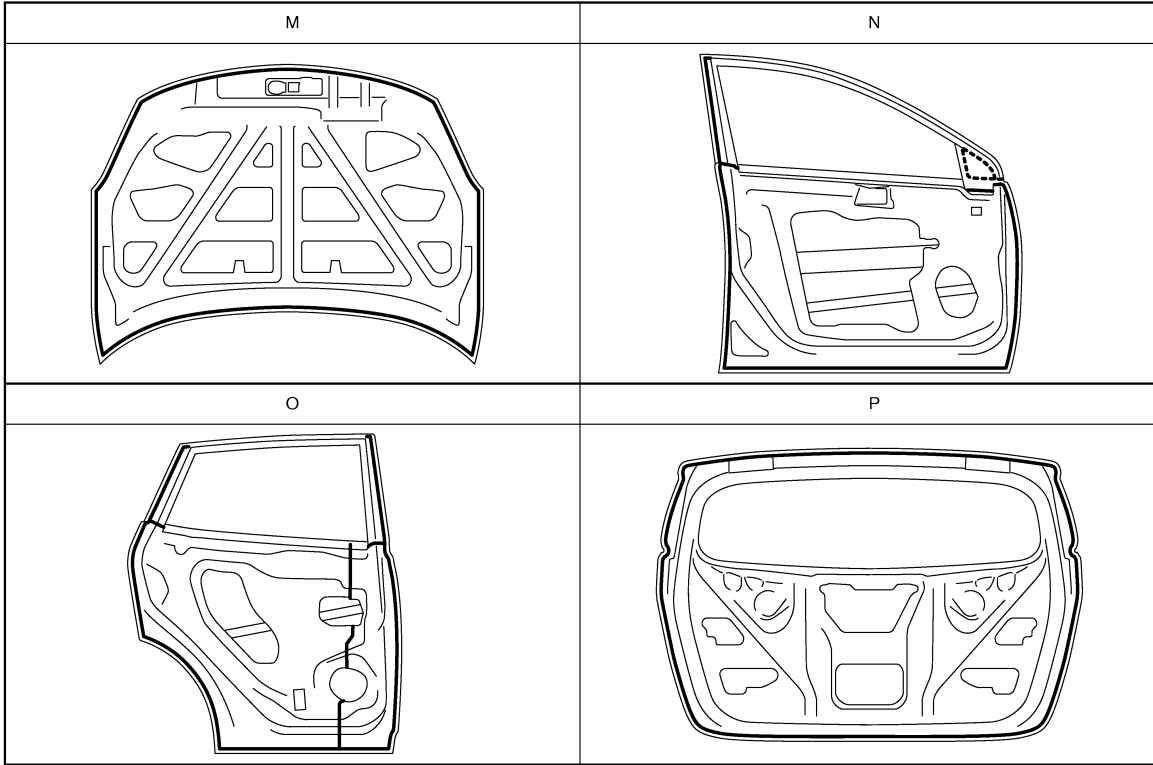
- ← : Vehicle front
- : Sealed portions

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

BRM

# BODY SEALING

## < REMOVAL AND INSTALLATION >



JSKIA0445GB

- ← : Vehicle front
- : Sealed portions



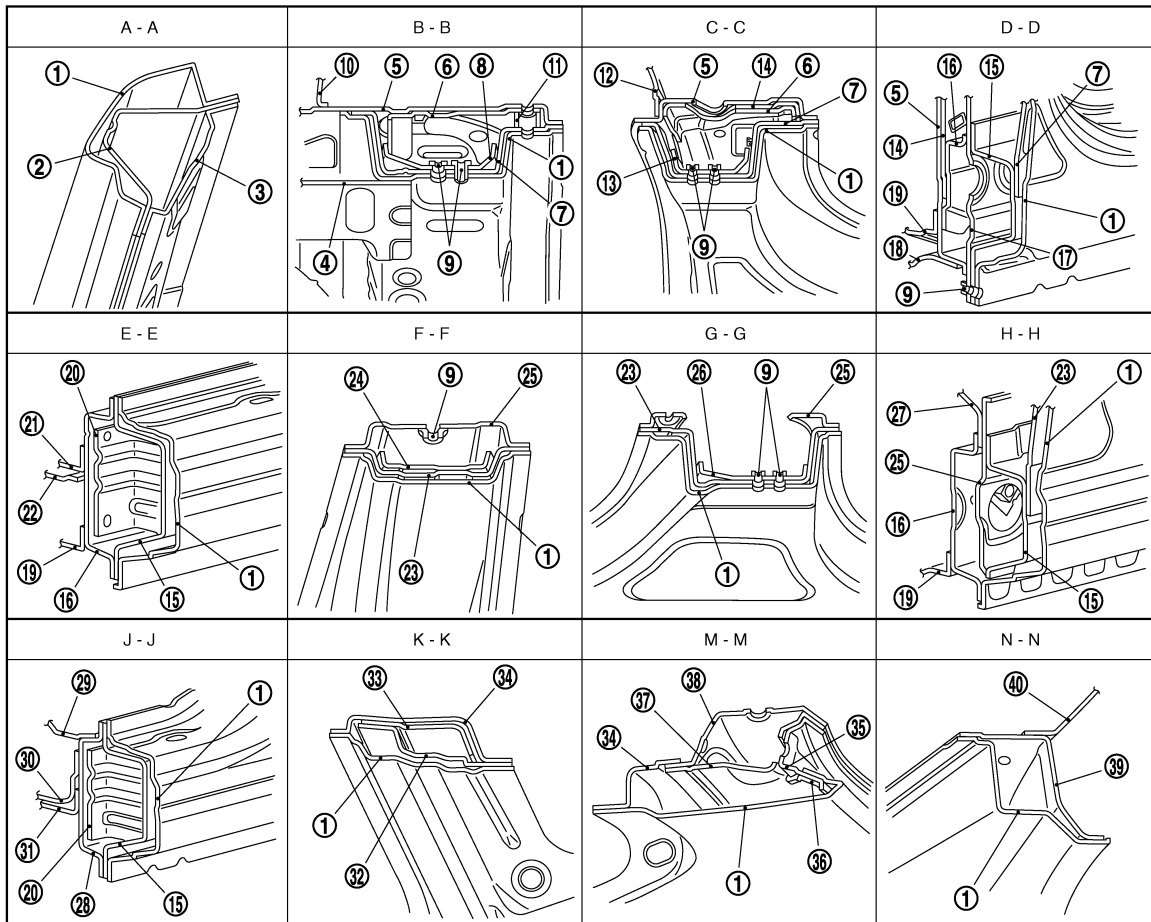
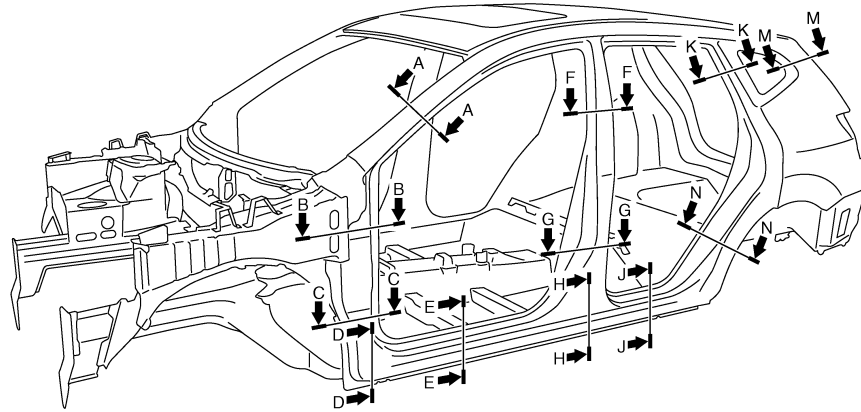
# BODY CONSTRUCTION

< REMOVAL AND INSTALLATION >

## BODY CONSTRUCTION

### Body Construction

INFOID:000000004231317



- |                                   |                                     |                                     |
|-----------------------------------|-------------------------------------|-------------------------------------|
| 1. Outer body side                | 2. Outer front pillar reinforcement | 3. Upper inner front pillar         |
| 4. Rear hoodledge reinforcement   | 5. Side dash                        | 6. Inner front pillar reinforcement |
| 7. Lower front pillar hinge brace | 8. Upper hinge plate                | 9. Weld nut                         |

JSKIA0446GB

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

BRM

## BODY CONSTRUCTION

### < REMOVAL AND INSTALLATION >

---

- |                                     |                                      |                                  |
|-------------------------------------|--------------------------------------|----------------------------------|
| 10. Upper dash                      | 11. Upper steering member bracket    | 12. Lower dash                   |
| 13. Lower hinge plate               | 14. Side dash reinforcement          | 15. Outer sill reinforcement     |
| 16. Inner sill                      | 17. Lower front pillar reinforcement | 18. Front outrigger              |
| 19. Front floor                     | 20. Outer sill brace                 | 21. 2nd crossmember              |
| 22. 2nd crossmember reinforcement   | 23. Center pillar hinge brace        | 24. Center pillar reinforcement  |
| 25. Inner center pillar             | 26. Lower center pillar hinge brace  | 27. Seat belt anchor             |
| 28. Inner sill extension            | 29. Rear seat crossmember            | 30. Rear floor front extension   |
| 31. Rear side member                | 32. Inner rear pillar reinforcement  | 33. Rear pillar seat belt anchor |
| 34. Inner rear pillar               | 35. Back pillar main                 | 36. Back door stay reinforcement |
| 37. Upper back pillar reinforcement | 38. Rear roof rail brace             | 39. Outer rear wheelhouse        |
| 40. Inner rear wheelhouse           |                                      |                                  |

# BODY ALIGNMENT

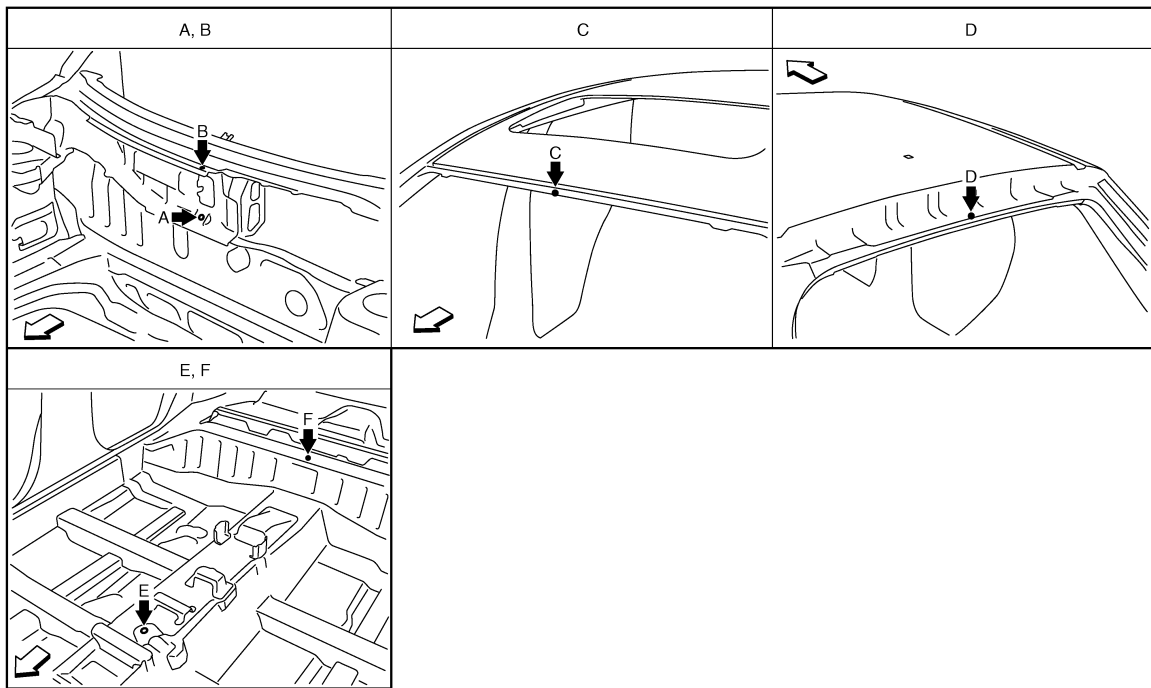
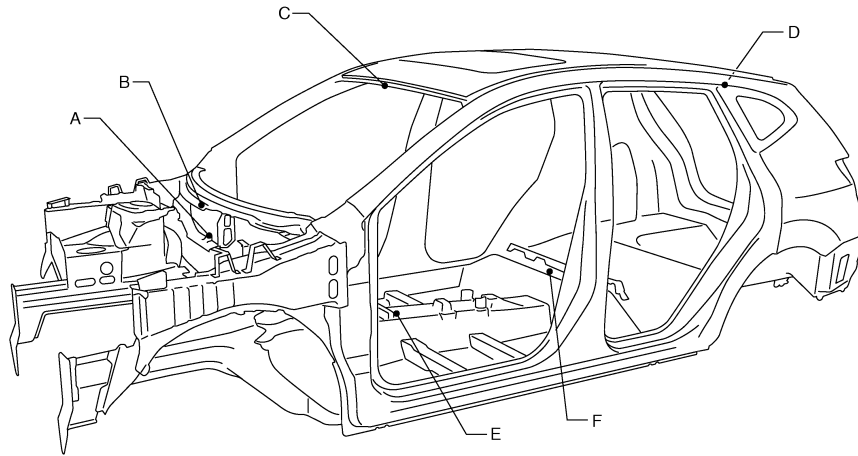
< REMOVAL AND INSTALLATION >

## BODY ALIGNMENT

### Body Center Marks

INFOID:000000004231318

A mark has been placed on each part of the body to indicate the vehicle center. When repairing parts damaged by an accident which might affect the vehicle frame (members, pillars, etc.), more accurate and effective repair will be possible by using these marks together with body alignment specifications.



JSKIA0447GB

← : Vehicle front

Unit: mm (in)

Points	Portion	Marks
A	Cowl top extension	Hole $\phi 7$ (0.28)
B	Center cowl top	Embossment
C	Front roof	Embossment
D	Rear roof	Embossment

# BODY ALIGNMENT

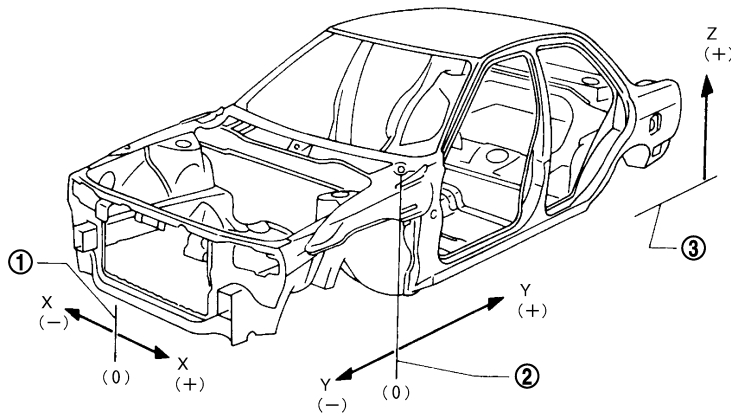
## < REMOVAL AND INSTALLATION >

Points	Portion	Marks
E	Trans control reinforcement	Hole 14×12 (0.55×0.47)
F	Rear seat crossmember	Embossment

### Description

INFOID:000000004231319

- All dimensions indicated in the figures are actual.
- When using a tracking gauge, adjust both pointers to equal length. Then check the pointers and gauge itself to make sure there is no free play.
- When a measuring tape is used, check to be sure there is no elongation, twisting or bending.
- Measurements should be taken at the center of the mounting holes.
- An asterisk (\*) following the value at the measuring point indicates that the measuring point on the other side is symmetrically the same value.
- The coordinates of the measurement points are the distances measured from the standard line of "X", "Y" and "Z".
- "Z": Imaginary base line [200 mm (7.87 in) below datum line ("0Z" at design plan)]



JSKIA0073GB

1. Vehicle center

2. Front axle center

3. Imaginary base line

### Engine Compartment

INFOID:000000004231320

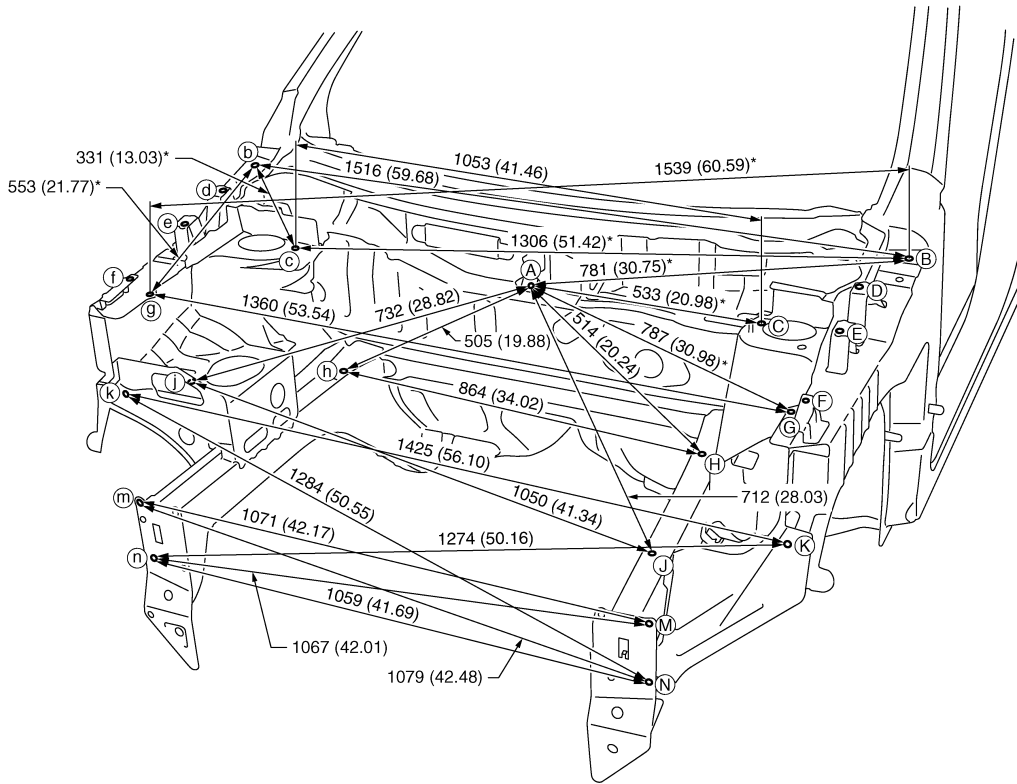
### Measurement

# BODY ALIGNMENT

## < REMOVAL AND INSTALLATION >

Dimensions marked with "\*" indicate symmetrically identical dimensions on both right and left hand of the vehicle.

Unit : mm (in)



A  
B  
C  
D  
E  
F  
G  
H  
I  
J

BRM

L  
M

N  
O  
P

JSKIA0427GB

«The others»

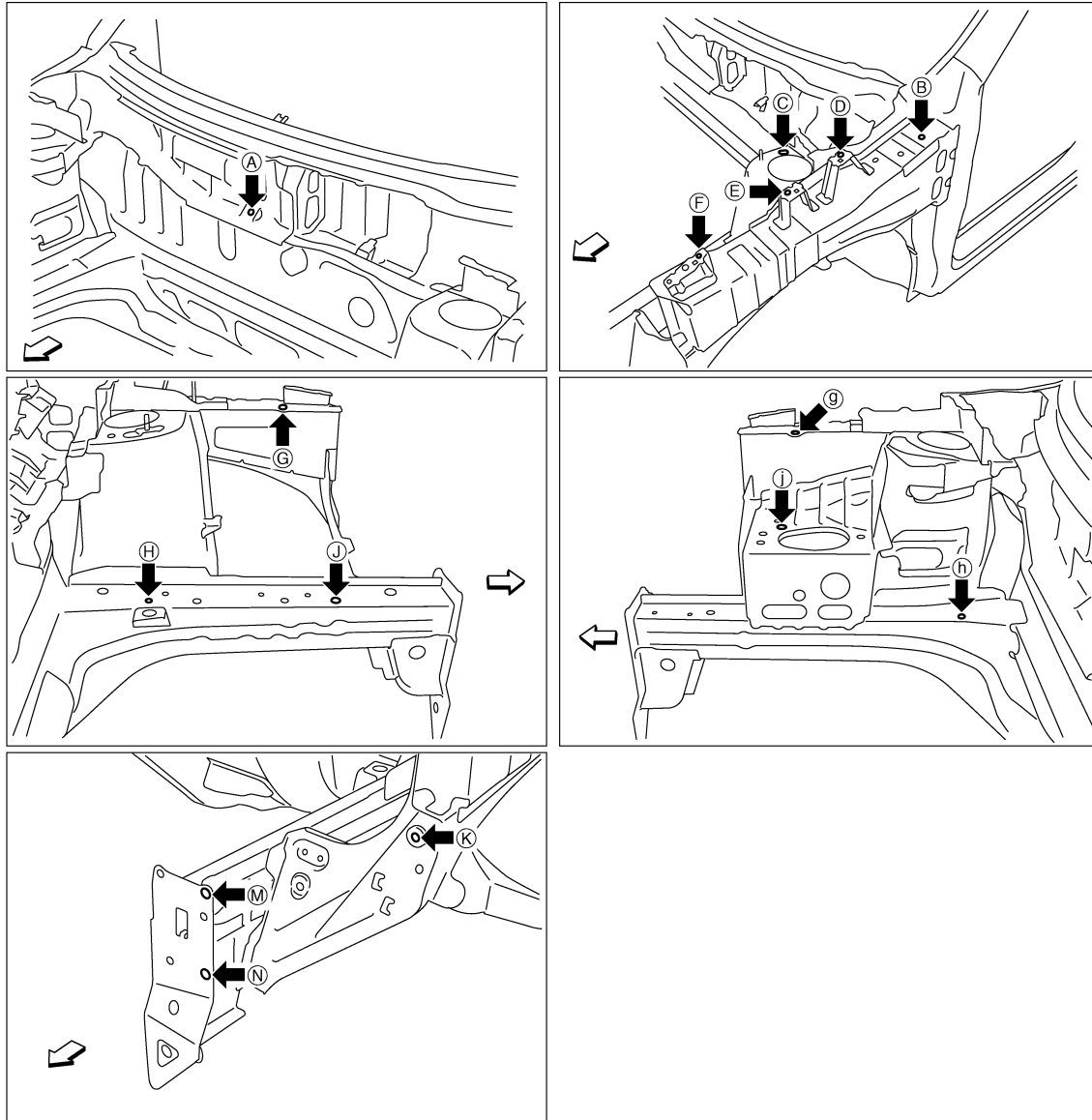
Unit: mm (in)

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
A - D	725 (28.54)*		A - F	827 (32.56)*		D - F	361 (14.21)*		E - e	1425 (56.10)	
A - E	750 (29.53)*		D - d	1418 (55.83)		D - f	1466 (57.72)*		F - f	1423 (56.02)	

### Measurement Points

# BODY ALIGNMENT

## < REMOVAL AND INSTALLATION >



JSKIA0428GB

← : Vehicle front

Unit: mm (in)

Point	Material	Point	Material
A	Cowl top extension hole center of center positioning mark $\phi 7$ (0.28)	J	Front side member hole center $\phi 14$ (0.55)
B, b	Hood hinge installing hole center $\phi 12$ (0.47)	j	Engine mounting bracket installing hole center $\phi 12$ (0.47)
C, c	Front strut installing hole center 16×10 (0.63×0.39)	K, k	Hoodedge connector hole center $\phi 12$ (0.47)
D, d, E, e, F, f	Upper front fender bracket hole center $\phi 7$ (0.28)	M, m	Front side member connector hole center 13×12 (0.51×0.47)

# BODY ALIGNMENT

## < REMOVAL AND INSTALLATION >

Point	Material	Point	Material
G, g	Hoodledge reinforcement hole center φ8 (0.31)	N, n	Front side member connector hole center N: φ15 (0.59) n: φ13 (0.51)
H, h	Front side member hole center H: φ7 (0.28) h: φ8 (0.31)		

## Underbody

INFOID:000000004231321

### Measurement

Dimensions marked with "\*" indicate symmetrically identical dimensions on both right and left hand of the vehicle.

As viewed from underside.

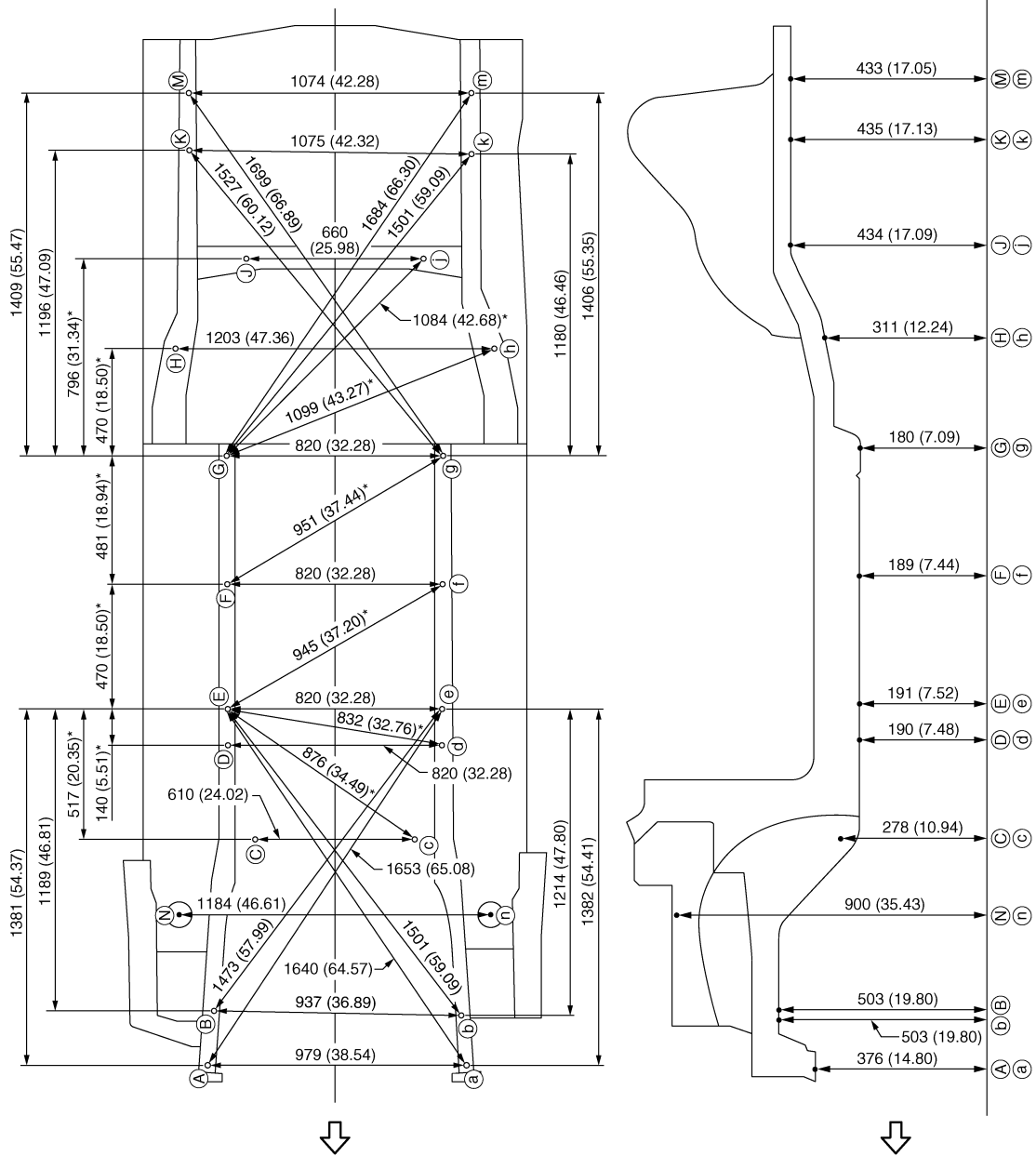
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
L  
M  
N  
O  
P

**BRM**

# BODY ALIGNMENT

< REMOVAL AND INSTALLATION >

Unit : mm (in)



JSKIA0429GB

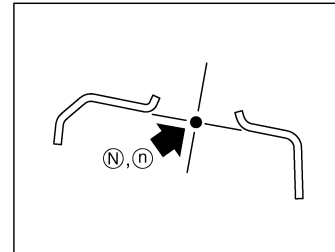
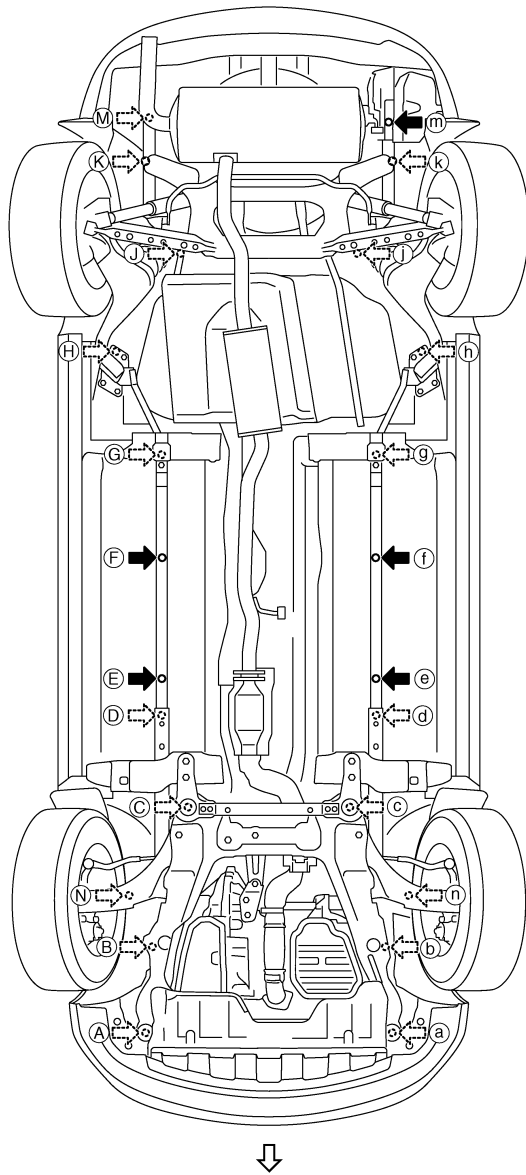
← : Vehicle front

Measurement Points



# BODY ALIGNMENT

## < REMOVAL AND INSTALLATION >



JSKIA0430GB

← :Vehicle front

Unit: mm (in)

Points	Coordinates			Remarks	Points	Coordinates			Remarks
	X	Y	Z			X	Y	Z	
A	478	-567	376	Hole $\phi$ 18 (0.71)	G, g	$\pm$ 410	1751	180	Hole $\phi$ 13 (0.51)
a	-501	-567	376	Hole $\phi$ 18 (0.71)	H, h	$\pm$ 601	2159	311	Hole $\phi$ 15 (0.59)
B	462	-346	503	Hole $\phi$ 16 (0.63)	J, j	$\pm$ 330	2501	234	J: Hole $\phi$ 30 (1.18) j: Hole 32 $\times$ 30 (1.26 $\times$ 1.18)
b	-475	-372	503	Hole $\phi$ 16(0.63)	K	549	2911	435	Hole $\phi$ 20 (0.79)
C, c	$\pm$ 305	301	278	C: Hole $\phi$ 30 (1.18) c: Hole 32 $\times$ 30 (1.26 $\times$ 1.18)	k	-526	2897	435	Hole $\phi$ 20 (0.79)
D, d	$\pm$ 410	660	190	Hole $\phi$ 14 (0.55)	M	551	3130	433	Hole $\phi$ 16 (0.63)
E, e	$\pm$ 410	800	191	Hole $\phi$ 12 (0.47)	m	-524	3130	433	Hole $\phi$ 16 (0.63)
F, f	$\pm$ 410	1270	189	Hole $\phi$ 12 (0.47)	N, n	$\pm$ 592	12	900	Hole $\phi$ 103 (4.06)

# BODY ALIGNMENT

< REMOVAL AND INSTALLATION >

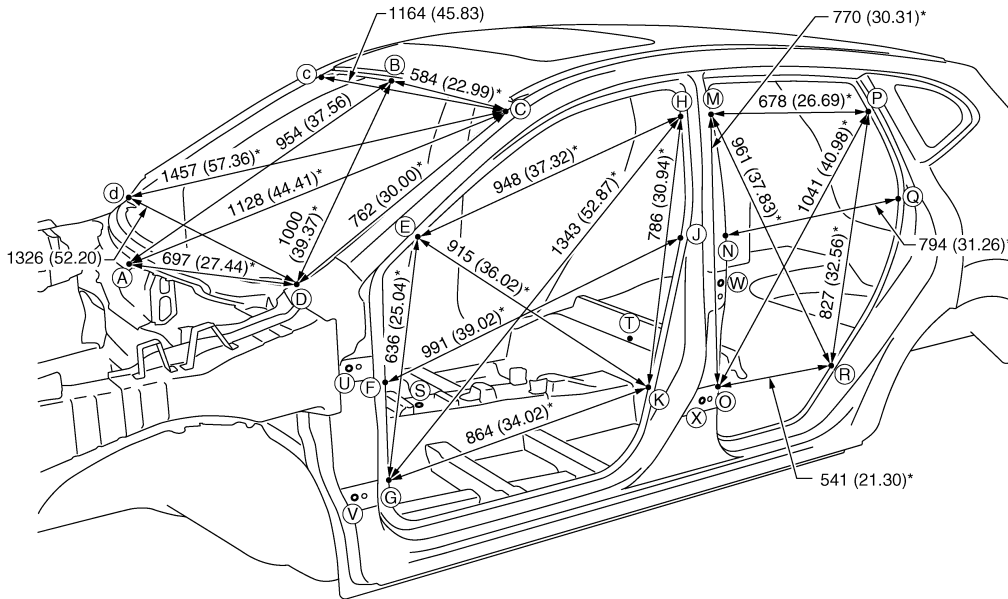
## Passenger Compartment

INFOID:000000004231322

### Measurement

Dimensions marked with "\*" indicate symmetrically identical dimensions on both right and left hand of the vehicle.

Unit : mm (in)



JSKIA0431GB

«The others»

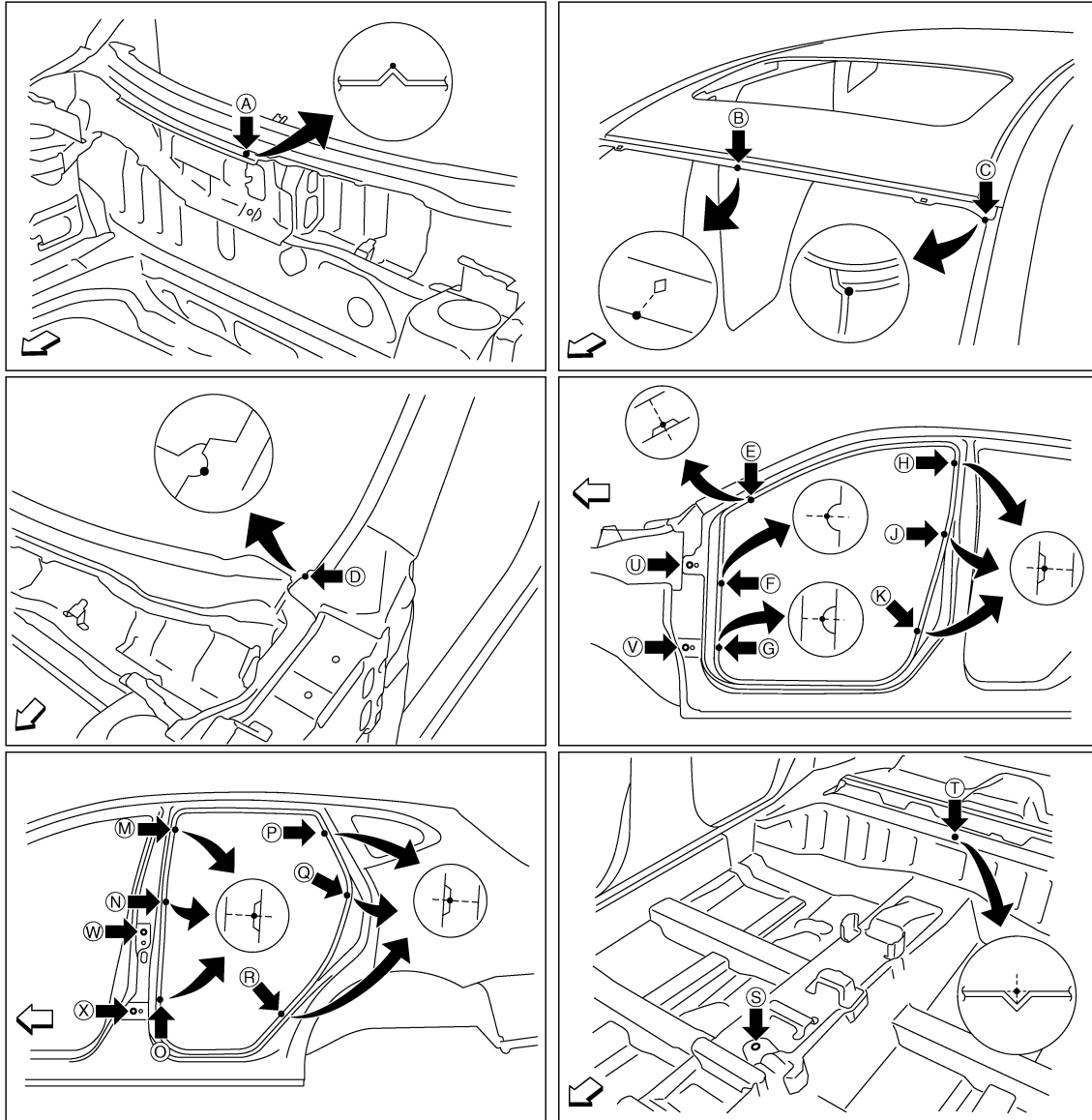
Unit: mm (in)

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
E - e	1421 (55.94)		J - j	1463 (57.60)		P - p	1253 (49.33)		T - N	944 (37.17)*	
E - g	1574 (64.97)*		K - k	1462 (57.56)		P - r	1584 (62.36)*		T - O	790 (31.10)*	
E - h	1643 (64.68)*		M - m	1263 (49.72)		Q - q	1404 (55.28)		T - P	1149 (45.24)*	
E - k	1707 (67.20)*		M - o	1562 (61.50)*		R - r	1457 (57.36)		T - Q	1055 (41.54)*	
F - f	1445 (56.89)		M - p	1429 (56.26)*		S - E	1089 (42.87)*		T - R	776 (30.55)*	
F - j	1760 (69.29)*		M - r	1663 (65.47)*		S - F	951 (37.44)*		U - W	1165 (45.87)*	
G - g	1458 (57.40)		N - n	1461 (57.52)		S - G	890 (35.04)*		U - X	1150 (45.28)*	
G - h	1911 (75.24)*		N - q	1637 (64.45)*		S - H	1267 (49.88)*		V - W	1229 (48.39)*	
G - k	1696 (66.77)*		O - o	1462 (57.56)		S - J	1071 (42.17)*		V - X	1117 (43.98)*	
H - h	1267 (49.88)		O - p	1707 (67.20)*		S - K	838 (32.99)*				
H - k	1572 (61.89)*		O - r	1556 (61.26)*		T - M	1103 (43.43)*				

### Measurement Points

# BODY ALIGNMENT

## < REMOVAL AND INSTALLATION >



A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

**BRM**

JSKIA0432GB

← : Vehicle front

Unit: mm (in)

Point	Material	Point	Material
A	Center cowl top positioning mark of center positioning mark	P, p, Q, q, R, r	Rear fender indent
B	Roof flange end of center positioning mark	S	Trans control reinforcement hole center of center positioning mark 14×12 (0.55×0.47)
C, c	Front pillar joggle	T	Rear seat crossmember positioning mark of center positioning mark
D, d, E, e, F, f, G, g	Front pillar indent	U, u, V, v, W, w, X, x	Door hinge installing hole center U, u, V, v, X, x: $\phi 12$ (0.47) W, w: $\phi 9$ (0.35)
H, h, J, j, K, k, M, m, N, n, O, o	Center pillar indent		

M  
N  
O  
P

# BODY ALIGNMENT

< REMOVAL AND INSTALLATION >

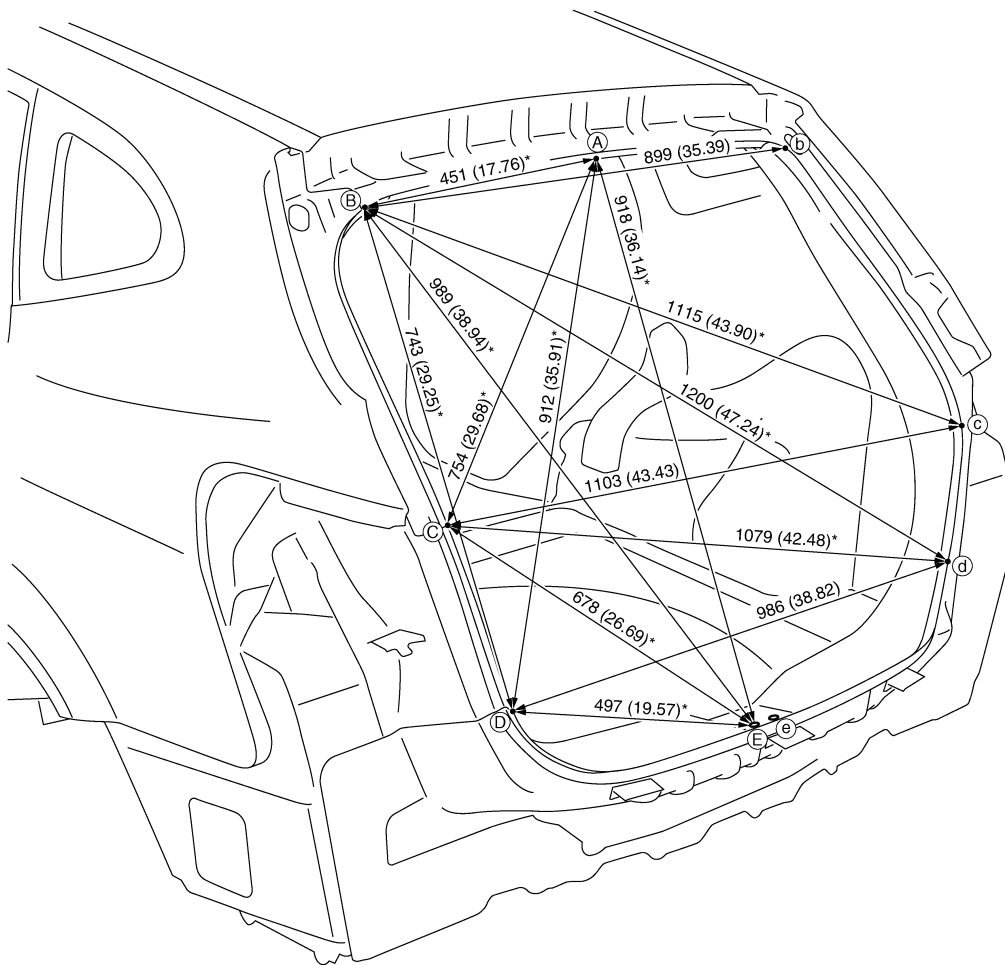
## Rear Body

INFOID:000000004231323

### Measurement

Dimensions marked with "\*" indicate symmetrically identical dimensions on both right and left hand of the vehicle.

Unit : mm (in)

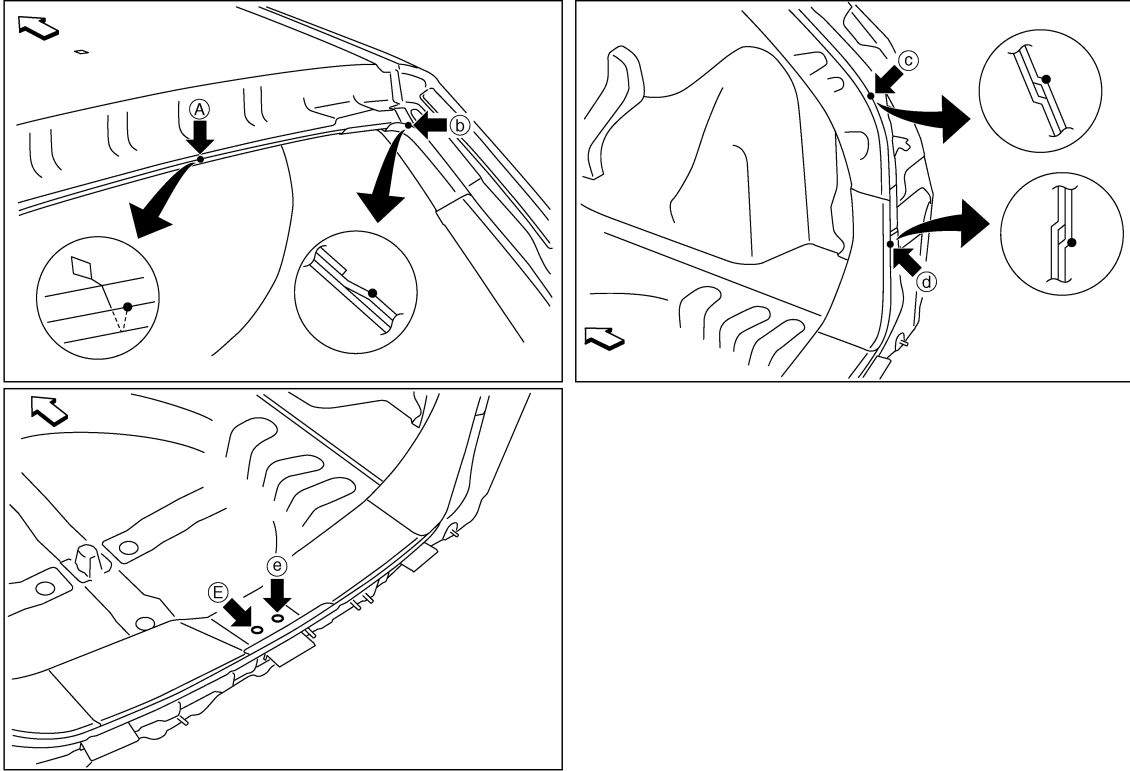


JSKIA0433GB

### Measurement Points

# BODY ALIGNMENT

## < REMOVAL AND INSTALLATION >



JSKIA0434GB

← : Vehicle front

Unit: mm (in)

Point	Material	Point	Material
A	Roof flange end of center positioning mark	C, c, D, d	Rear combination lamp base joggle
B, b	Rear fender corner joggle	E, e	Back door striker installing square hole center 13×13 (0.51×0.51)

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

BRM

# REPAIRING HIGH STRENGTH STEEL

< REMOVAL AND INSTALLATION >

## REPAIRING HIGH STRENGTH STEEL

### High Strength Steel (HSS)

INFOID:000000004231324

High strength steel is used for body panels in order to reduce vehicle weight.

Accordingly, precautions in repairing automotive bodies made of high strength steel are described below:

Tensile strength	Major applicable parts
370 - 590 MPa	<ul style="list-style-type: none"><li>• Side dash</li><li>• Front suspension mounting bracket</li><li>• Rear side member assembly</li><li>• Other reinforcements</li><li>• Inner center front bumper reinforcement</li></ul>
780 - 1350 MPa	<ul style="list-style-type: none"><li>• Front side member assembly</li><li>• Front side member closing plate assembly</li><li>• Lower dash crossmember reinforcement</li><li>• Lower dash crossmember assembly</li><li>• Front side member rear extension (Front floor component part)</li><li>• Inner sill</li><li>• Inner center pillar</li></ul>

SP130 is the most commonly used HSS.

SP150 HSS is used only on parts that require much more strength.

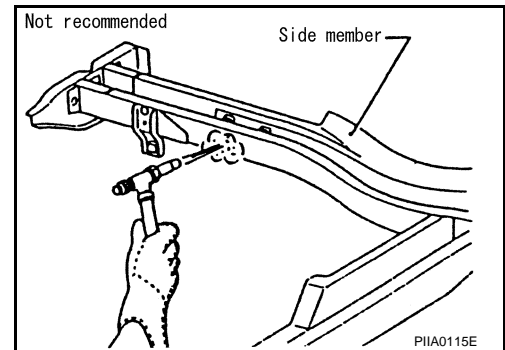
Read the following precautions when repairing HSS:

1. Additional points to consider

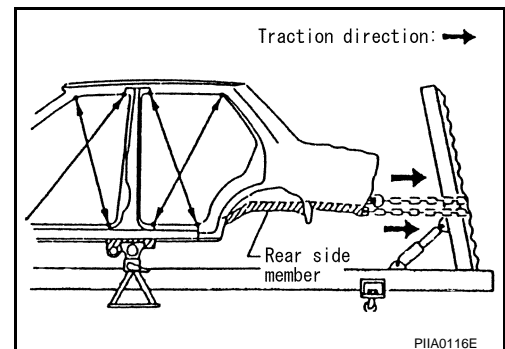
- The repair of reinforcements (such as side members) by heating is not recommended since it may weaken the component. When heating is unavoidable, do not heat HSS parts above 550°C (1,022°F).

Verify heating temperature with a thermometer.

(Crayon-type and other similar type thermometer are appropriate.)



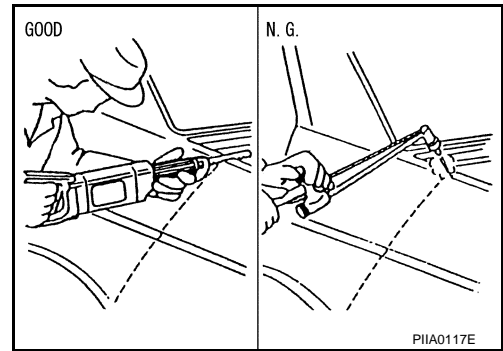
- When straightening body panels, use caution in pulling any HSS panel. Because HSS is very strong, pulling may cause deformation in adjacent portions of the body. In this case, increase the number of measuring points, and carefully pull the HSS panel.



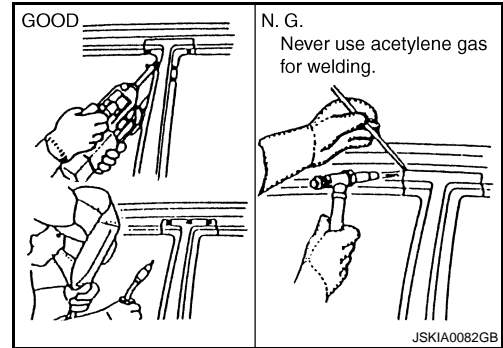
# REPAIRING HIGH STRENGTH STEEL

## < REMOVAL AND INSTALLATION >

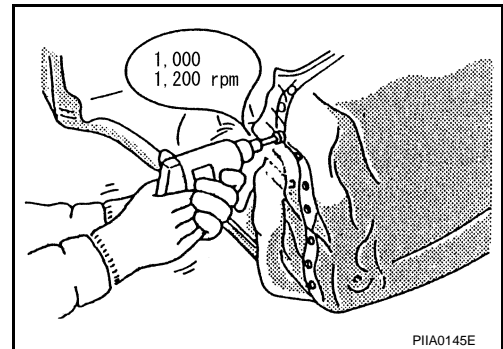
- When cutting HSS panels, avoid gas (torch) cutting if possible. Instead, use a saw to avoid weakening surrounding areas due to heat. If gas (torch) cutting is unavoidable, allow a minimum margin of 50 mm (1.97 in).



- When welding HSS panels, use spot welding whenever possible in order to minimize weakening surrounding areas due to heat. If spot welding is impossible, use MIG. welding. Do not use gas (torch) for welding because it is inferior in welding strength.



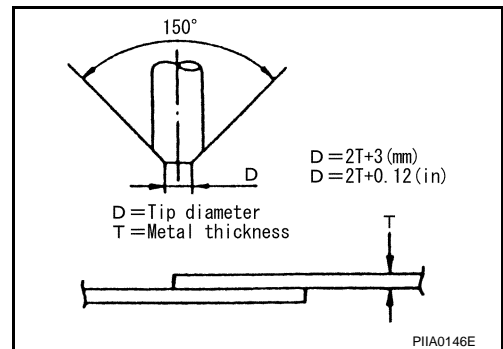
- The spot weld on HSS panels is harder than that of an ordinary steel panel. Therefore, when cutting spot welds on a HSS panel, use a low speed high torque drill (1,000 to 1,200 rpm) to increase drill bit durability and facilitate the operation.



## 2. Precautions in spot welding HSS

This work should be performed under standard working conditions. Always note the following when spot welding HSS:

- The electrode tip diameter must be sized properly according to the metal thickness.

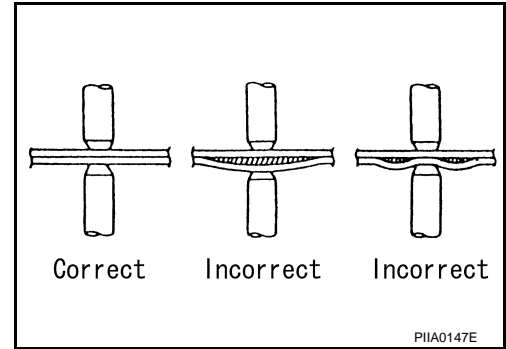


A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
BRM  
L  
M  
N  
O  
P

# REPAIRING HIGH STRENGTH STEEL

## < REMOVAL AND INSTALLATION >

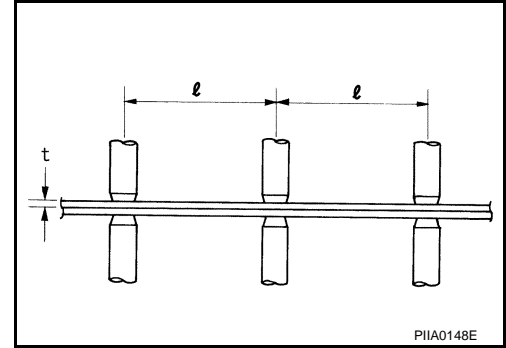
- The panel surfaces must fit flush to each other, leaving no gaps.



- Follow the specifications for the proper welding pitch.

Unit: mm (in)

Thickness (t)	Minimum pitch (l)
0.6 (0.024)	10 (0.39) or over
0.8 (0.031)	12 (0.47) or over
1.0 (0.039)	18 (0.71) or over
1.2 (0.047)	20 (0.79) or over
1.6 (0.063)	27 (1.06) or over
1.8 (0.071)	31 (1.22) or over





# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

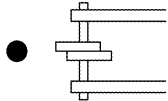
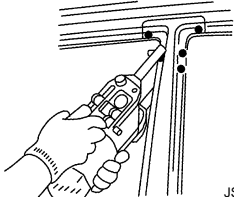
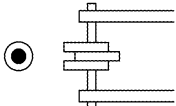
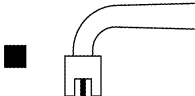


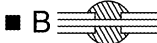
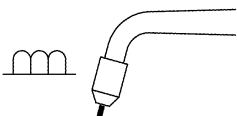
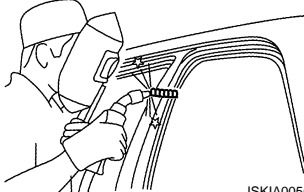
## REPLACEMENT OPERATIONS

### Description

INFOID:000000004231325

- This section is prepared for technicians who have attained a high level of skill and experience in repairing collision-damaged vehicles and also use modern service tools and equipment. Persons unfamiliar with body repair techniques should not attempt to repair collision-damaged vehicles by using this section.
- Technicians are also encouraged to read Body Repair Manual (Fundamentals) in order to ensure that the original functions and quality of the vehicle can be maintained. The Body Repair Manual (Fundamentals) contains additional information, including cautions and warning, that are not including in this manual. Technicians should refer to both manuals to ensure proper repairs.
- Please note that these information are prepared for worldwide usage, and as such, certain procedures might not apply in some regions or countries.

The symbols used in this section for welding operations are shown below.

Symbol marks	Description	
 <p data-bbox="425 842 511 861">JSKIA0049ZZ</p>	2-spot welds	 <p data-bbox="1312 968 1398 987">JSKIA0053ZZ</p>
 <p data-bbox="425 1094 511 1113">JSKIA0050ZZ</p>	3-spot welds	
 <p data-bbox="425 1472 511 1491">JSKIA0051ZZ</p>	MIG plug weld	 <p data-bbox="1312 1346 1398 1365">JSKIA0054ZZ</p> <p data-bbox="1008 1377 1317 1402">For 3 panels plug weld method</p> <div style="display: flex; flex-direction: column; align-items: center;"> <div data-bbox="1144 1438 1299 1480">  <p data-bbox="1144 1444 1193 1470">■ A</p> </div> <div data-bbox="1144 1533 1299 1575">  <p data-bbox="1144 1539 1193 1564">■ B</p> </div> </div> <p data-bbox="1312 1598 1398 1617">JSKIA0055ZZ</p>
 <p data-bbox="425 1850 511 1869">JSKIA0052ZZ</p>	MIG seam weld / Point weld	 <p data-bbox="1312 1850 1398 1869">JSKIA0056ZZ</p>

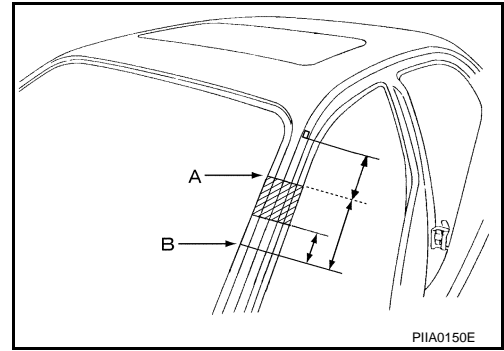
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
L  
M  
N  
O  
P

BRM

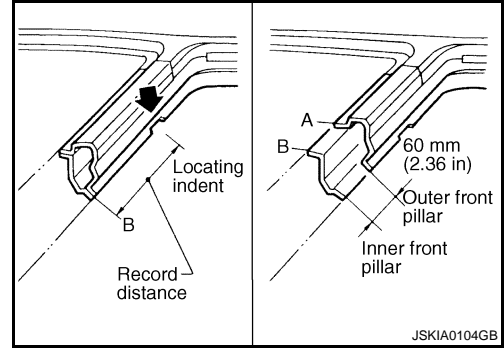
# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >

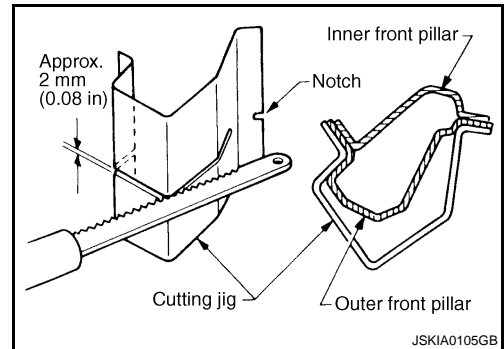
- Front pillar butt joint can be determined anywhere within shaded area as shown in the figure. The best location for the butt joint is at position A due to the construction of the vehicle. Refer to the front pillar section.



- Determine cutting position and record distance from the locating indent. Use this distance when cutting the service part. Cut outer front pillar over 60 mm (2.36 in) above inner front pillar cut position.

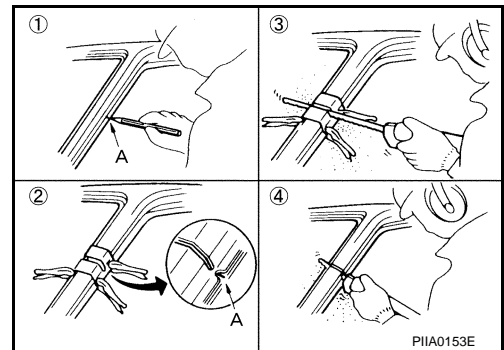


- Prepare a cutting jig to make outer pillar easier to cut. Also, this will permit service part to be accurately cut at joint position.



- An example of cutting operation using a cutting jig is as follows.

1. Mark cutting lines.  
A: Cut position of outer pillar  
B: Cut position of inner pillar
2. Align cutting line with notch on jig. Clamp jig to pillar.
3. Cut outer pillar along groove of jig (at position A).
4. Remove jig and cut remaining portions.
5. Cut inner pillar at position B in same manner.



## REAR FENDER HEMMING PROCESS

1. A wheel arch is to be installed and hemmed over left and right outer wheel house.
2. In order to hem the wheel arch, it is necessary to repair any damaged or defaced parts around outer wheel house.

### CAUTION:

Ensure that the area that is to be glued around outer wheelhouse is undamaged or defaced.

Procedure of the hemming process

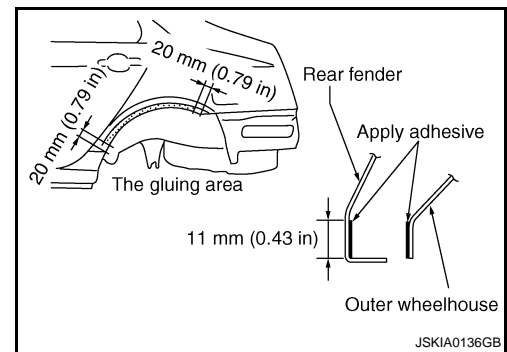
# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >

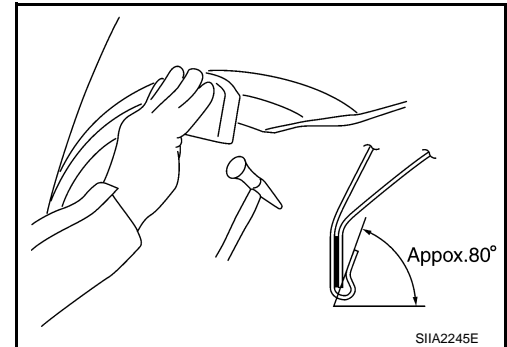
- Peel off old bonding material on the surface of outer wheelhouse and clean thoroughly.
- Peel off a primer coat in the specified area where new adhesive is to be applied on rear fender (the replacing part).
- Apply new adhesive to both specified areas of outer wheelhouse and rear fender.

**<Adhesive> 3M automix panel bond 8115,  
or any equivalents**

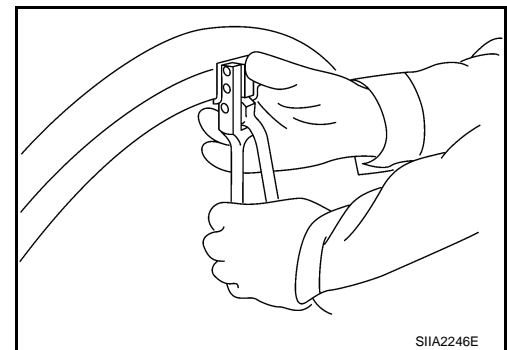
- Attach rear fender to the body of the car, and weld the required part except the hemming part.



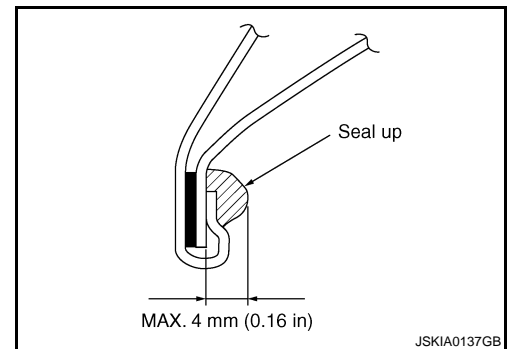
- Bend the welded part starting from the center of the wheel arch gradually with a hammer and a dolly. (Also hem the end of the flange.)
- Hemming with a hammer is conducted to an approximate angle of 80 degrees.



- Starting from the center, hem the wheel arch gradually, using slight back and forth motion with a hemming tool.



- Seal up the area around the hemmed end of the flange.



## FOAM REPAIR

During factory body assembly, foam insulators are installed in certain body panels and locations around the vehicle. Use the following procedure (s) to replace any factory-installed foam insulators.

### Urethane foam applications

Use commercially available spray foam for sealant (foam material) repair of material used on vehicle. Read instructions on product for fill procedures.

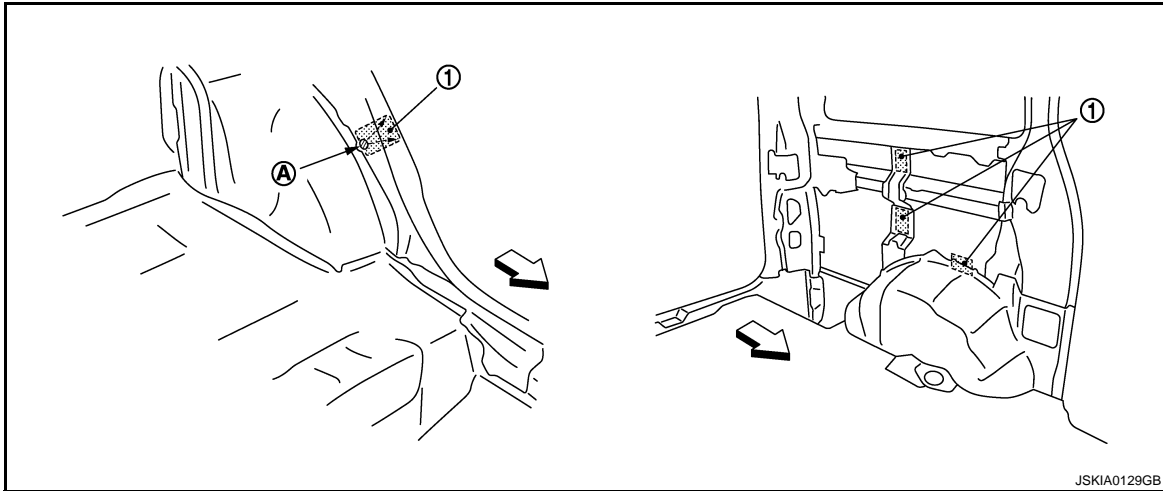
1. Fill procedures after installation of service part.
  - Remove foam material remaining on vehicle side.
  - Clean area in which foam was removed.
  - Install service part.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
BRM  
L  
M  
N  
O  
P

# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >

- Insert nozzle into hole near fill area and fill foam material or fill in enough to close gap with the service part.



- 1. Urethane foam
- A. Nozzle insert hole
- ↔ : Vehicle front

- 2. Fill procedures before installation of service part.
  - Remove foam material remaining on vehicle side.
  - Clean area in which foam was removed.
  - Fill foam material on wheelhouse outer side.

- 1. Urethane foam
- A. Fill while avoiding flange area
- ↔ : Vehicle front

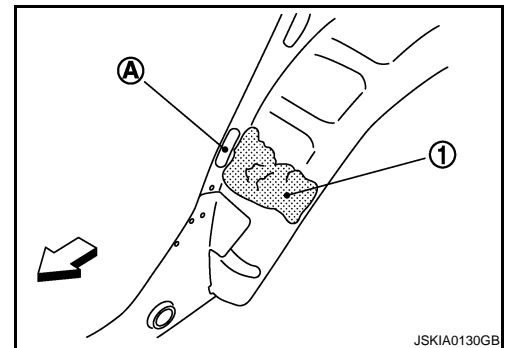
### NOTE:

Fill in enough to close gap with service part while avoiding flange area.

- Install service part.

### NOTE:

Refer to label for information on working times.



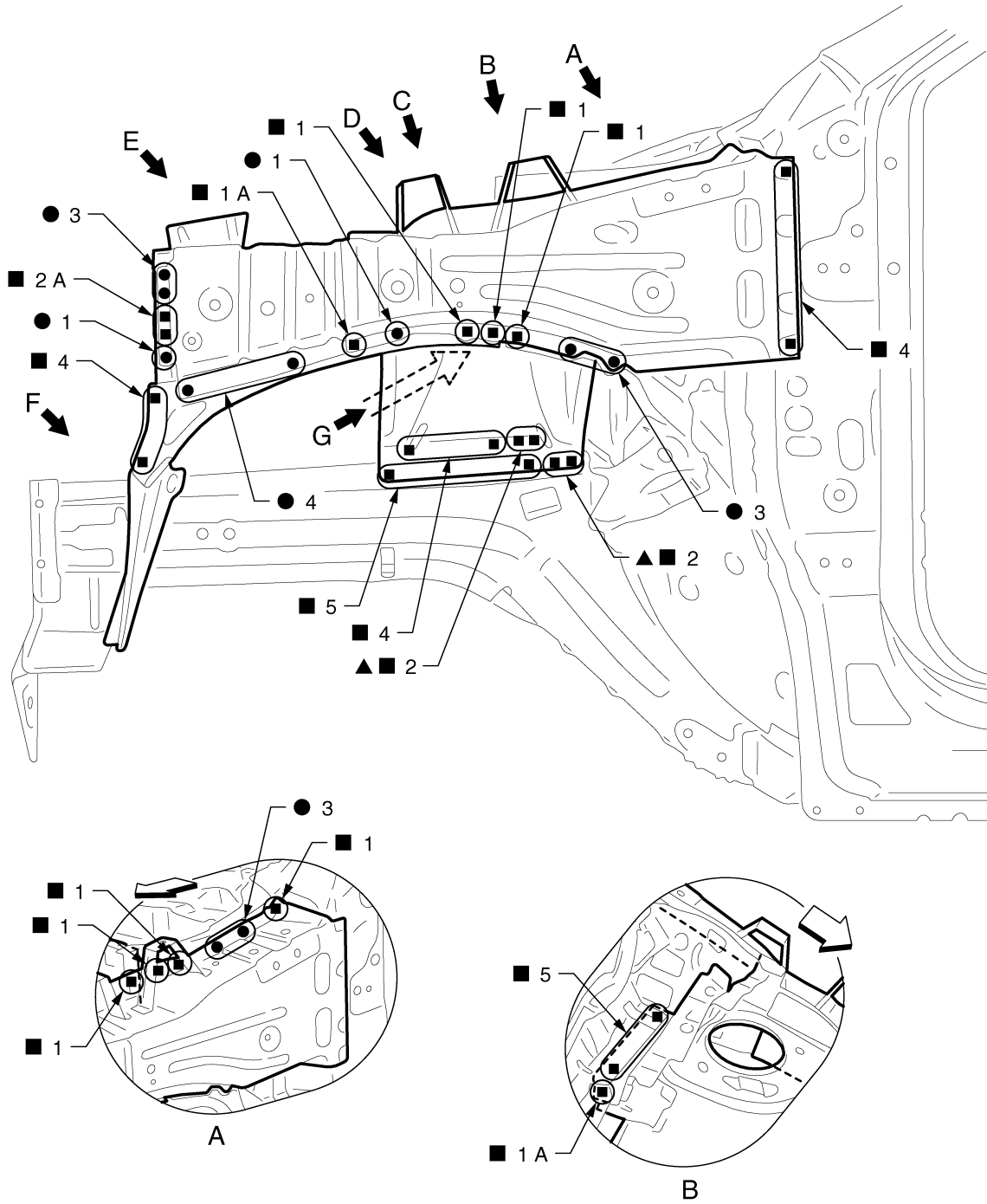
## Hoodledge

INFOID:000000004231326

Remove the hoodledge reinforcement gusset (reusable).

# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >



A  
B  
C  
D  
E  
F  
G  
H  
I  
J

BRM

L  
M  
N  
O  
P

← : Vehicle front

▲ : Drill  $\phi 12$  mm (0.47 in) hole for the plug welding hole (ultra high strength steel plate).

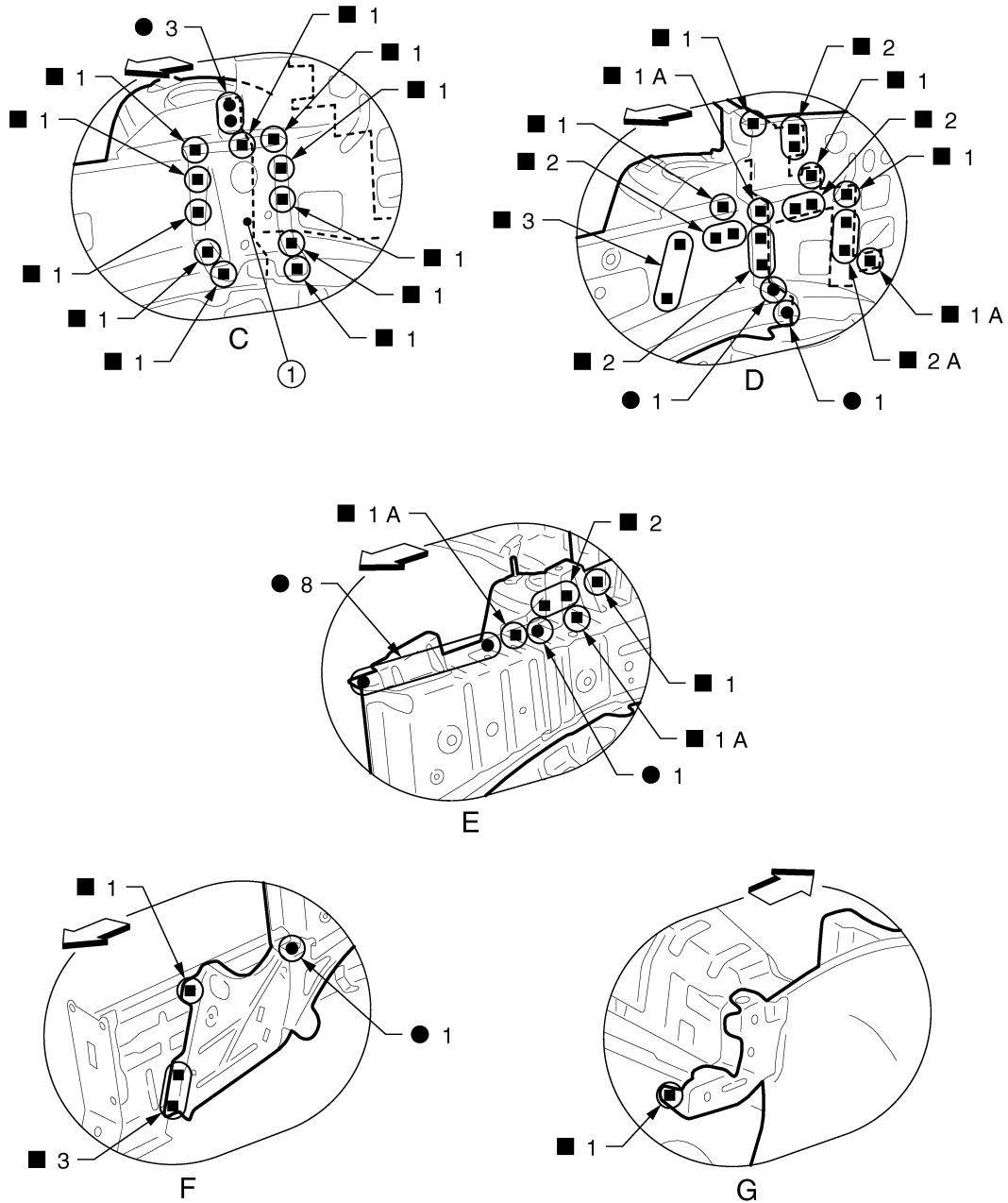
### Replacement parts

- Upper hoodedge (LH)
- Hoodledge reinforcement (LH)
- Front strut housing (LH)
- Hoodledge connector assembly (LH)

JSKIA0404GB

# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >



JSKIA0405GB

1. Hoodledge reinforcement gusset

↔ : Vehicle front

View C: Before installing hoodledge reinforcement

View D: Before installing hoodledge reinforcement and hoodledge reinforcement gusset

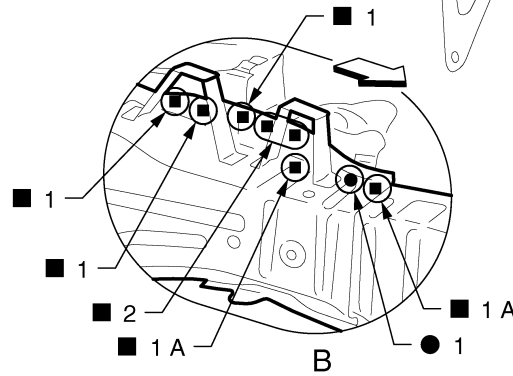
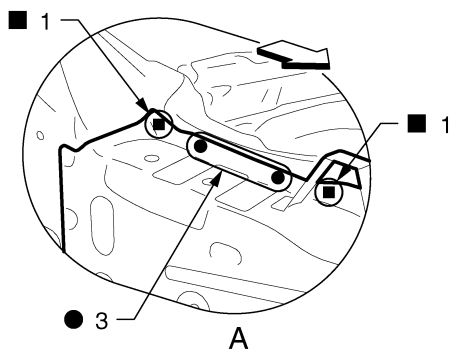
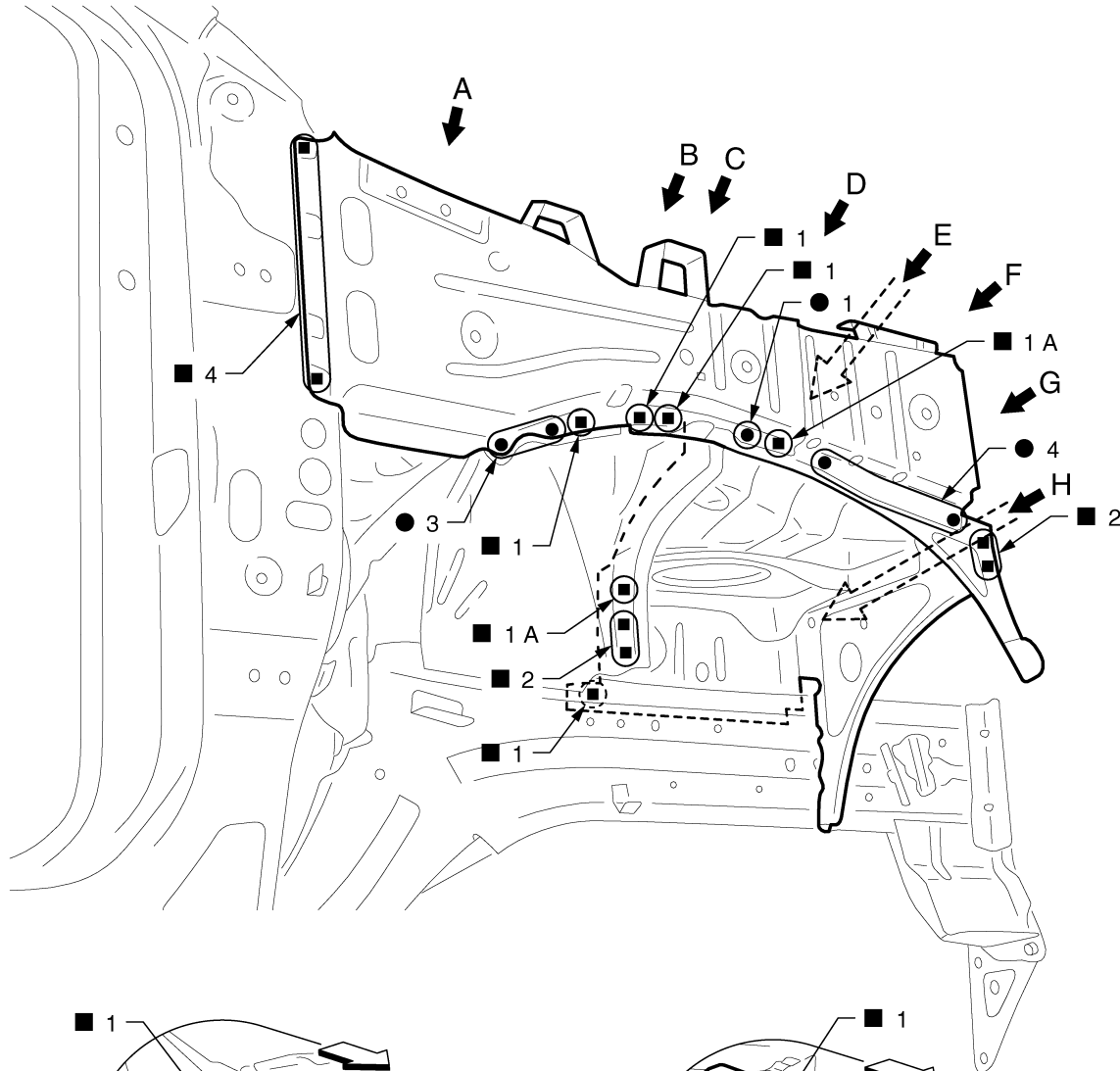
### Hoodledge (Partial Replacement)

INFOID:000000004231327

Remove the hoodledge reinforcement gusset (reusable).

# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >



JSKIA0406GB

← : Vehicle front

Replacement parts

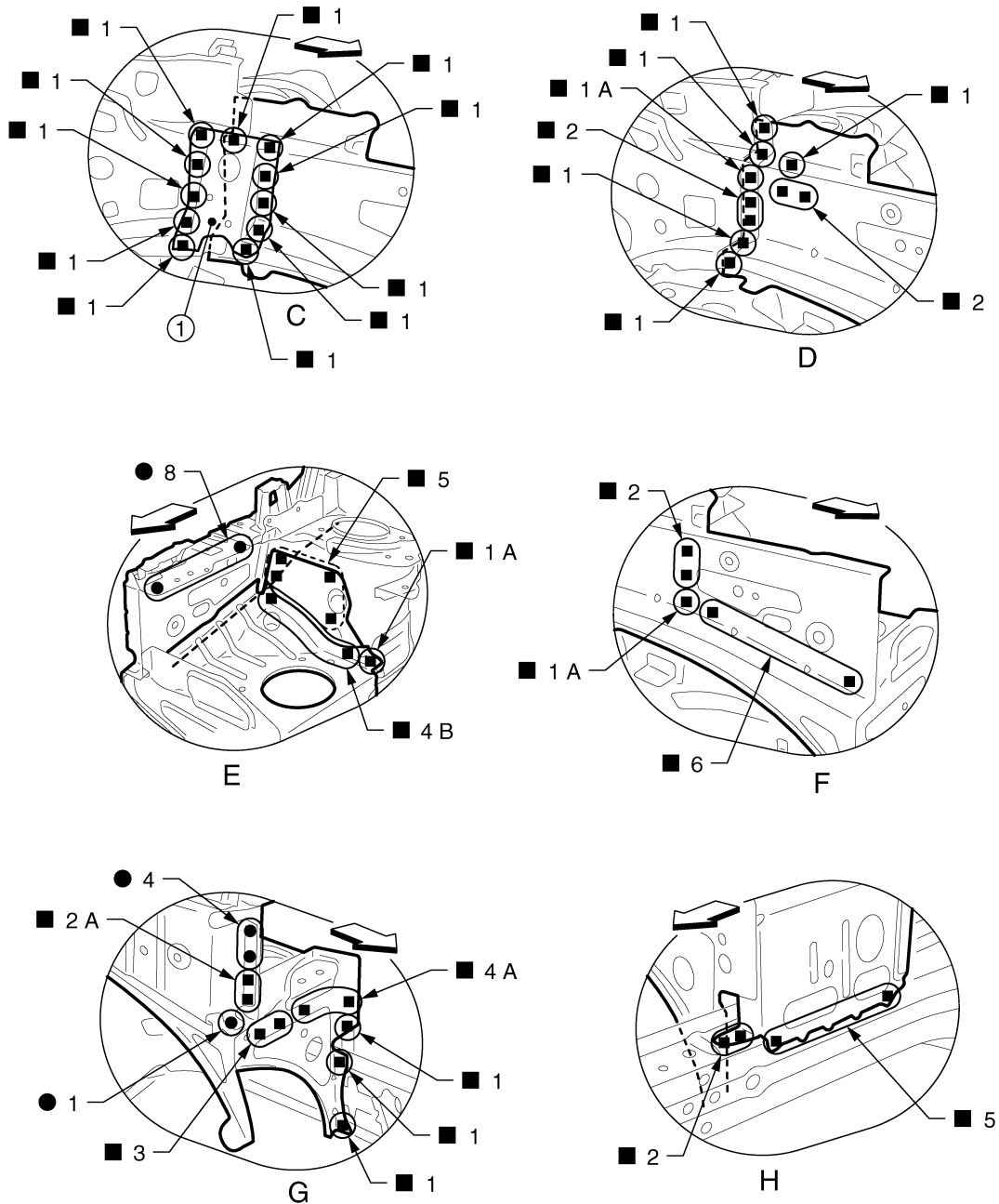
- Upper hoodedge (RH)
- Hoodedge reinforcement (RH)
- Hoodedge connector assembly (RH)
- Engine mounting member bracket

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

BRM

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



JSKIA0407GB

1. Hoodledge reinforcement gusset

← : Vehicle front

View C, F: Before installing hoodledge reinforcement

View D: Before installing hoodledge reinforcement and hoodledge reinforcement gusset

## Front Side Member

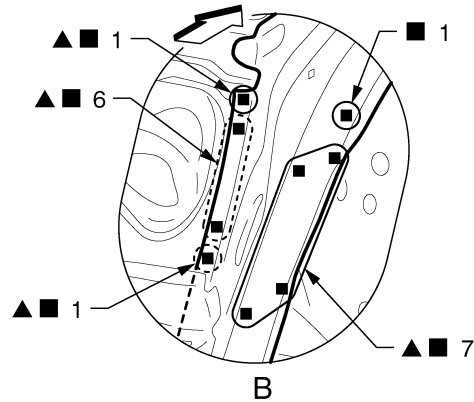
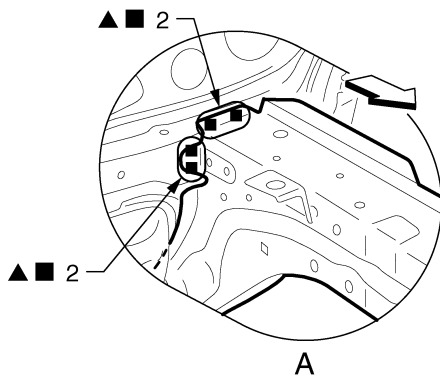
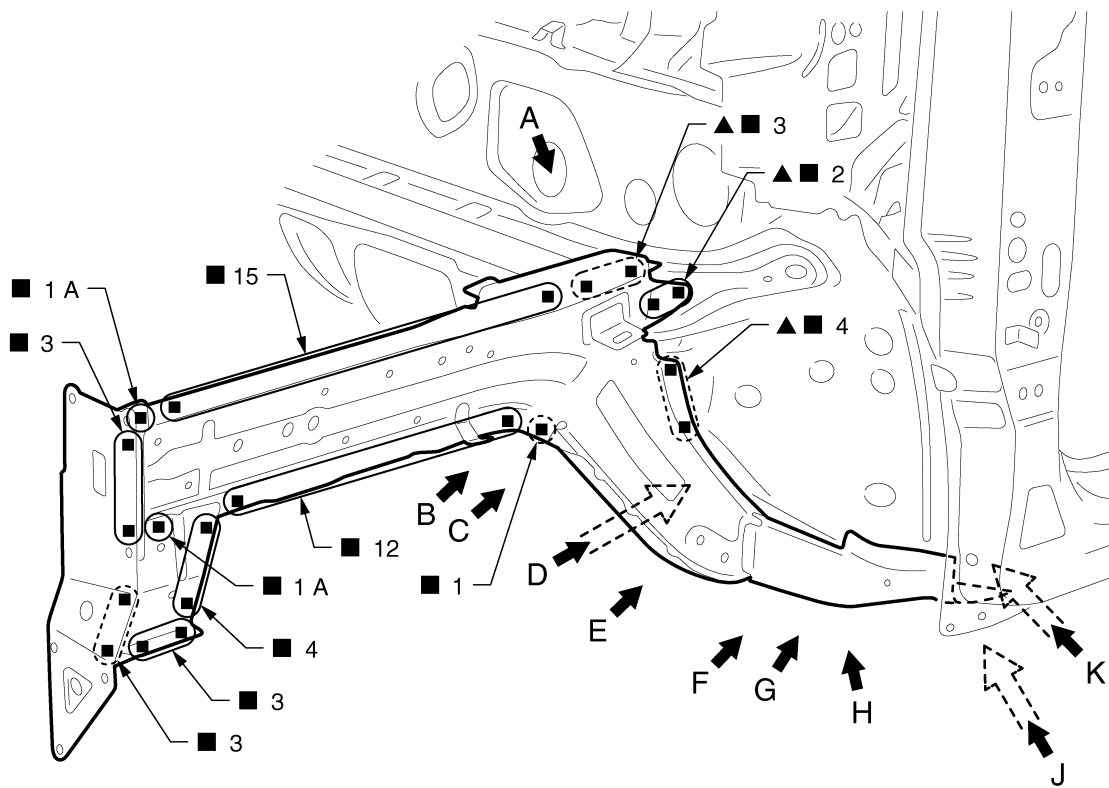
INFOID:000000004231328

Work after hoodledge has been removed.



# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >



A  
B  
C  
D  
E  
F  
G  
H  
I  
J

BRM

L  
M  
N  
O  
P

← : Vehicle front

▲ : Drill  $\phi 12$  mm (0.47 in) hole for the plug welding hole (ultra high strength steel plate).

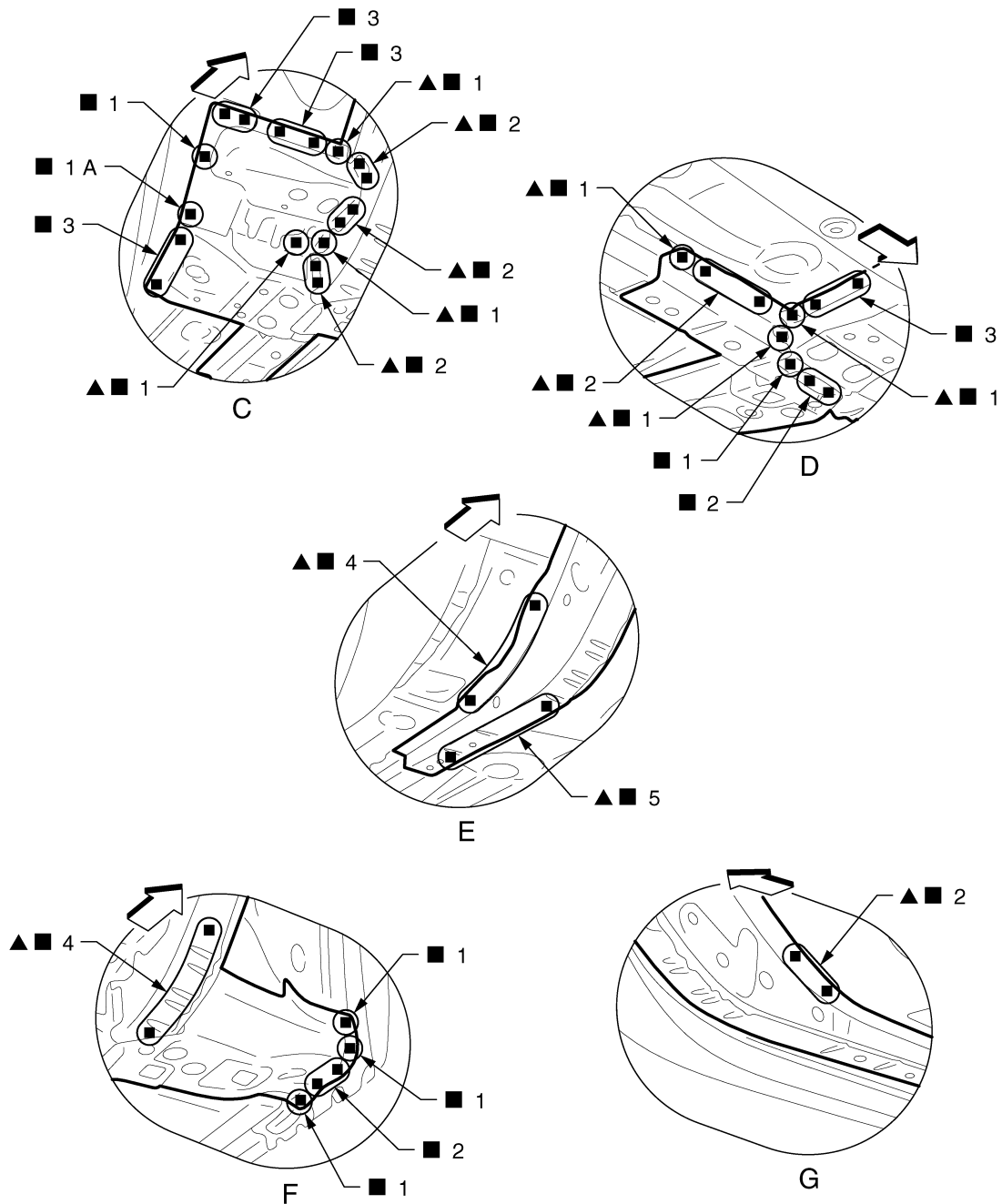
Replacement parts

- Front side member (LH)
- Front side member closing plate assembly (LH)
- Front suspension mounting bracket (LH)

JSKIA0408GB

# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >



JSKIA0409GB

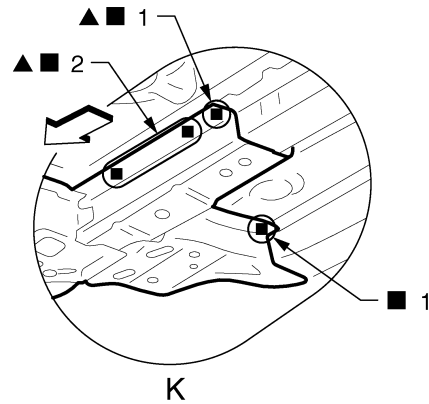
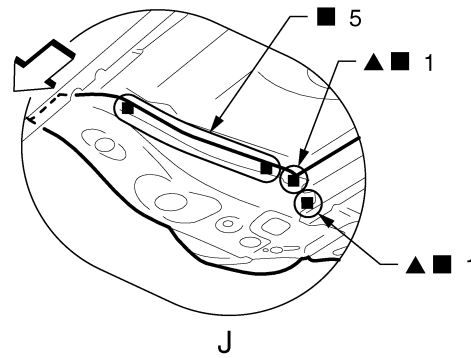
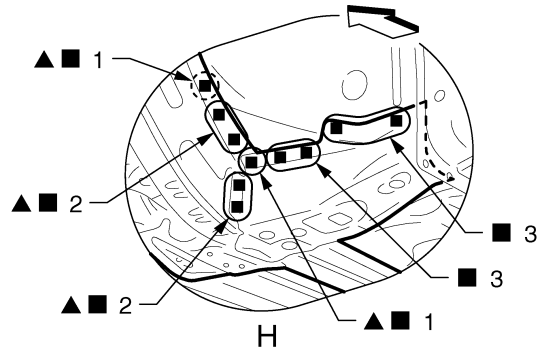
↔ : Vehicle front

▲ : Drill  $\phi 12$  mm (0.47 in) hole for the plug welding hole (ultra high strength steel plate).

View E, G: Before installing front suspension mounting bracket

# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >



⇐ : Vehicle front

▲ : Drill  $\phi 12$  mm (0.47 in) hole for the plug welding hole (ultra high strength steel plate).

JSKIA0410GB

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

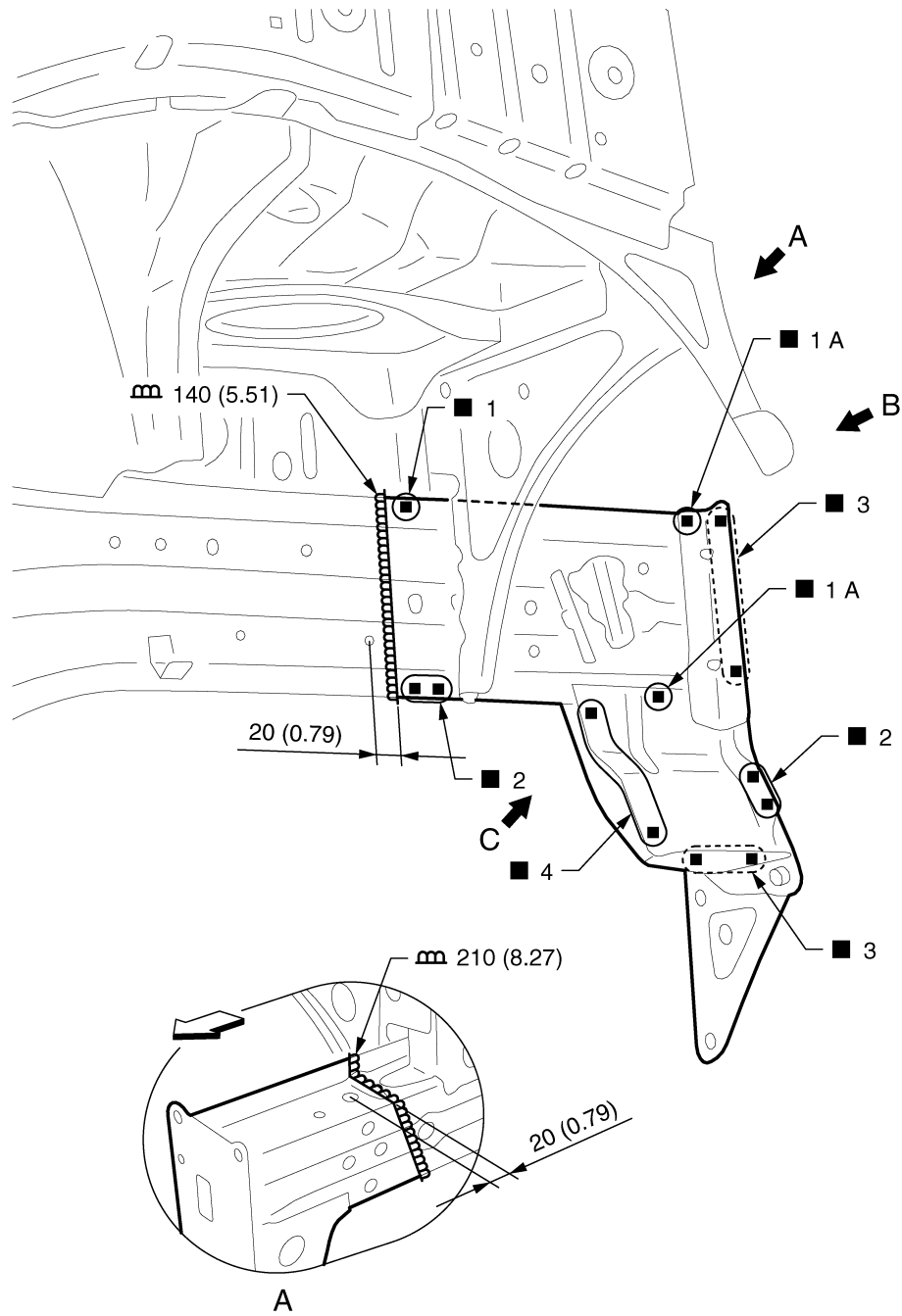
BRM

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

## Front Side Member (Partial Replacement)

INFOID:000000004231329



Unit: mm (in)

JSKIA0411GB

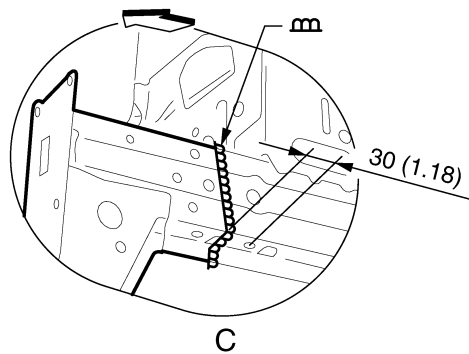
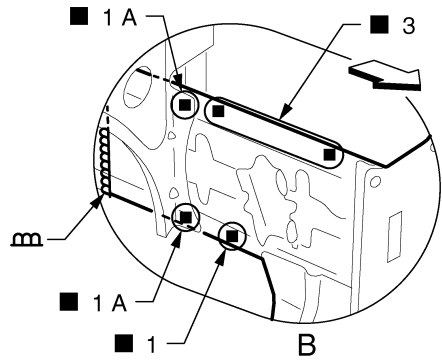
← : Vehicle front

Replacement parts

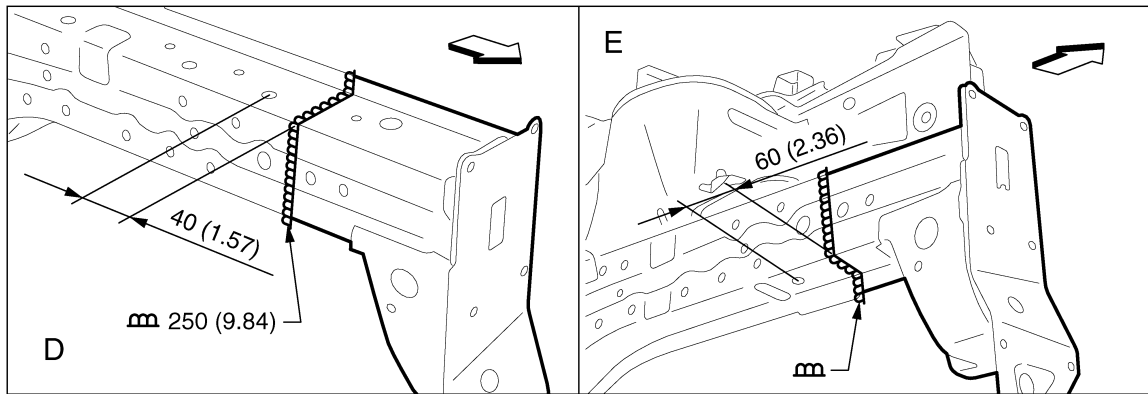
- Front side member (RH)
- Front side member closing plate assembly (RH)

# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >



Unit: mm (in)



JSKIA0412GB

← : Vehicle front

View D, E: Left side member view

### Front Pillar

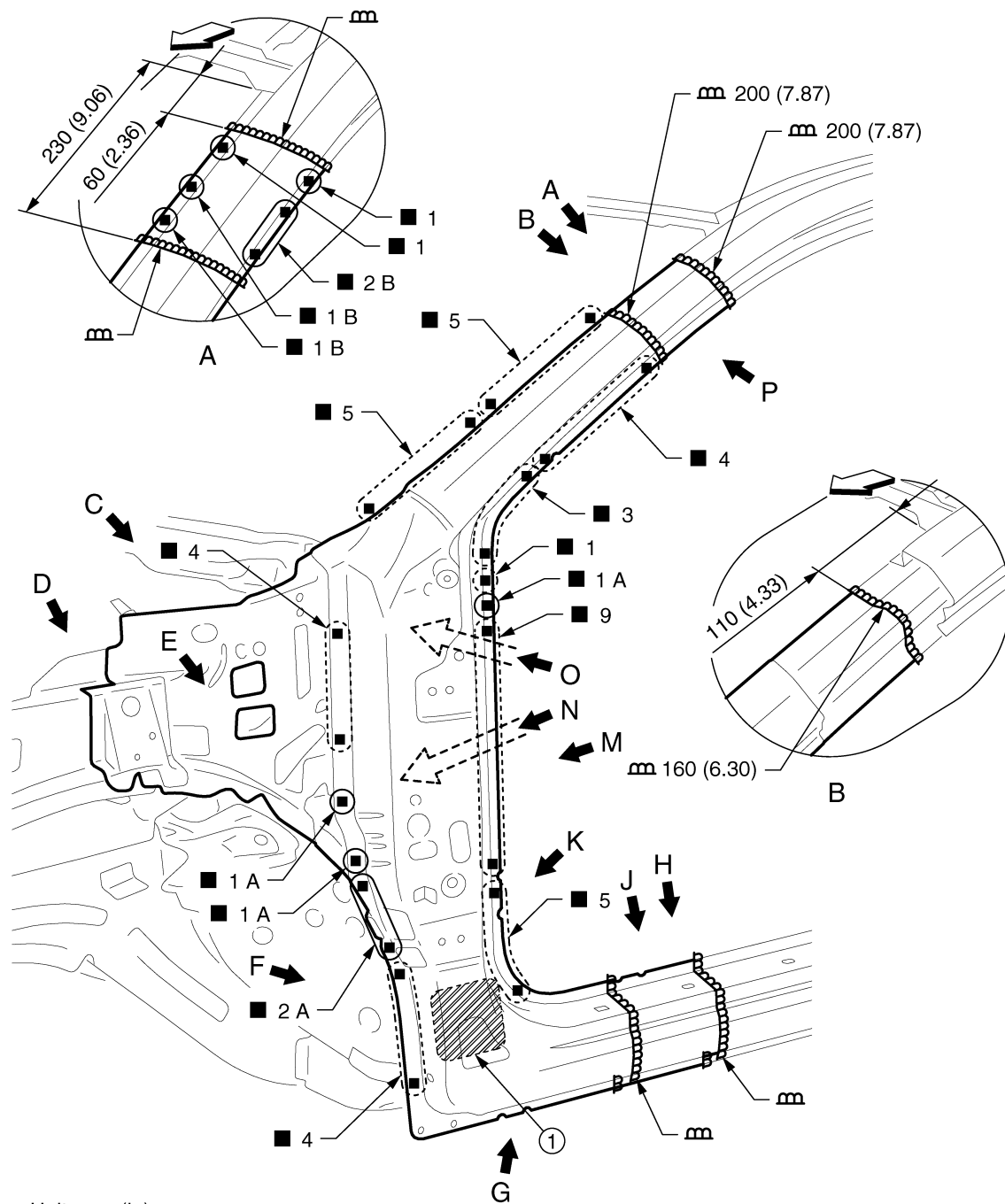
INFOID:000000004231330

Work after hoodledge reinforcement has been removed.  
Remove the inner front pillar reinforcement for easier butt welding of the side dash.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
BRM  
L  
M  
N  
O  
P

# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >



JSKIA0413GB

1. Urethane foam

↔ : Vehicle front

Replacement parts

● Side body assembly (LH)

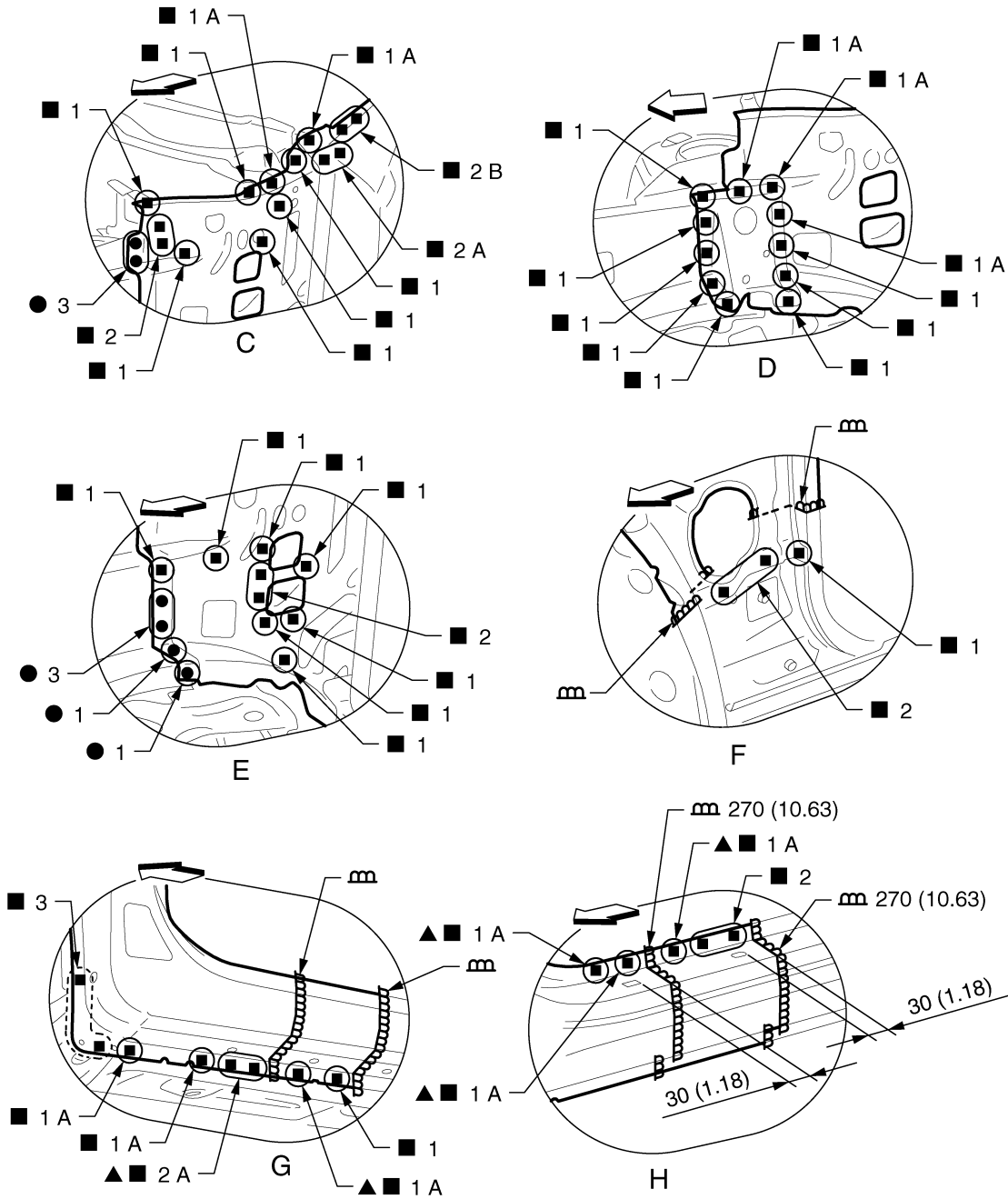
● Side dash (LH)

● Upper inner front pillar (LH)

View B: Before installing outer front side body

# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >



Unit: mm (in)

← : Vehicle front

▲ : Drill  $\phi 10$  mm (0.39 in) hole for plug welding hole (ultra high strength steel plate).

View C, E: Before installing hoodledge reinforcement gusset

View F: Before installing side body assembly and inner front pillar reinforcement

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

BRM

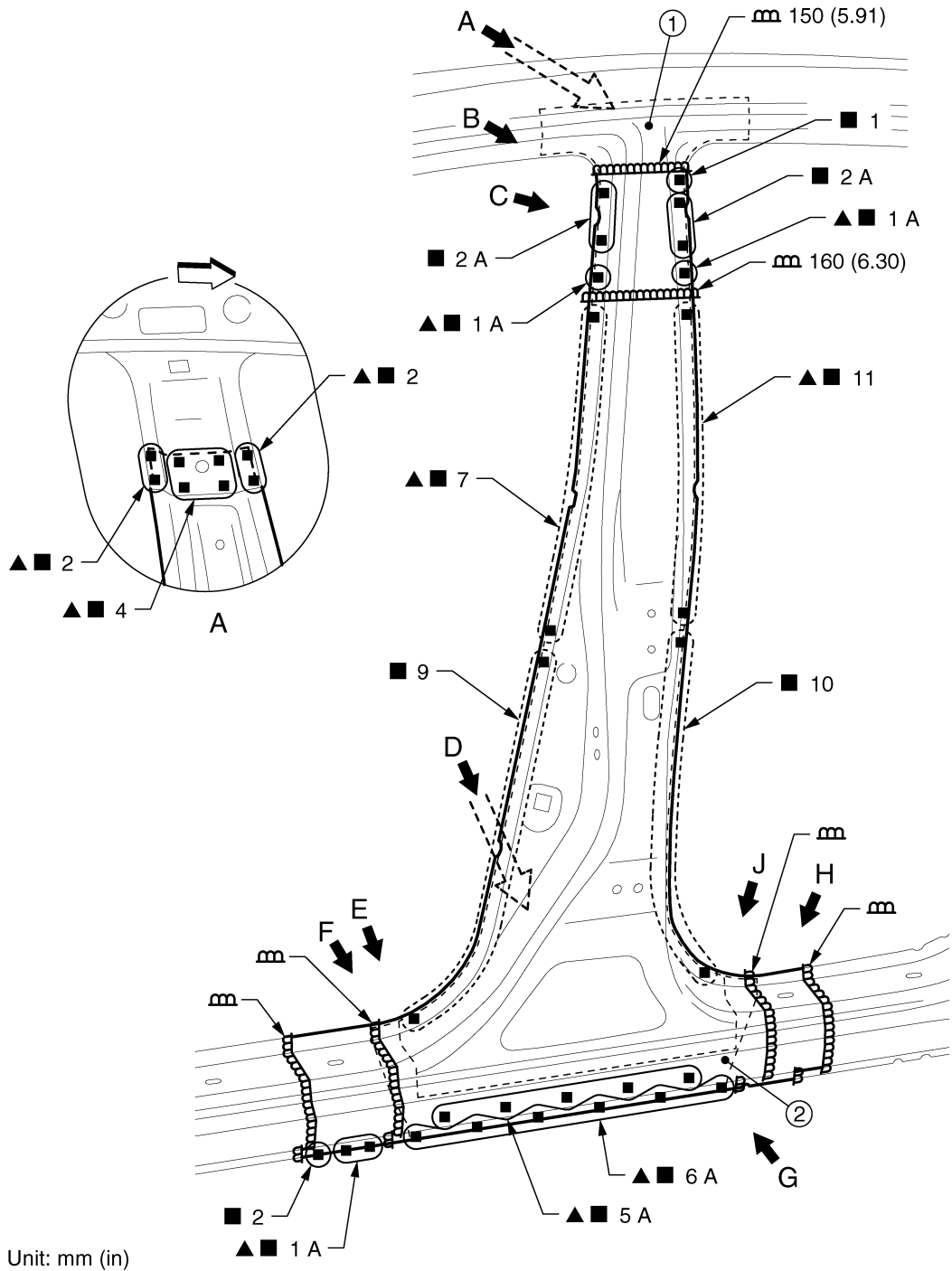
JSKIA0414GB





# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



1. Lower center pillar brace

2. Inner center pillar

↔ : Vehicle front

▲ : Drill  $\phi 9$  mm (0.35 in) hole for the plug welding hole (ultra high strength steel plate).

Replacement parts

● Side body assembly (LH)

● Inner center pillar (LH)

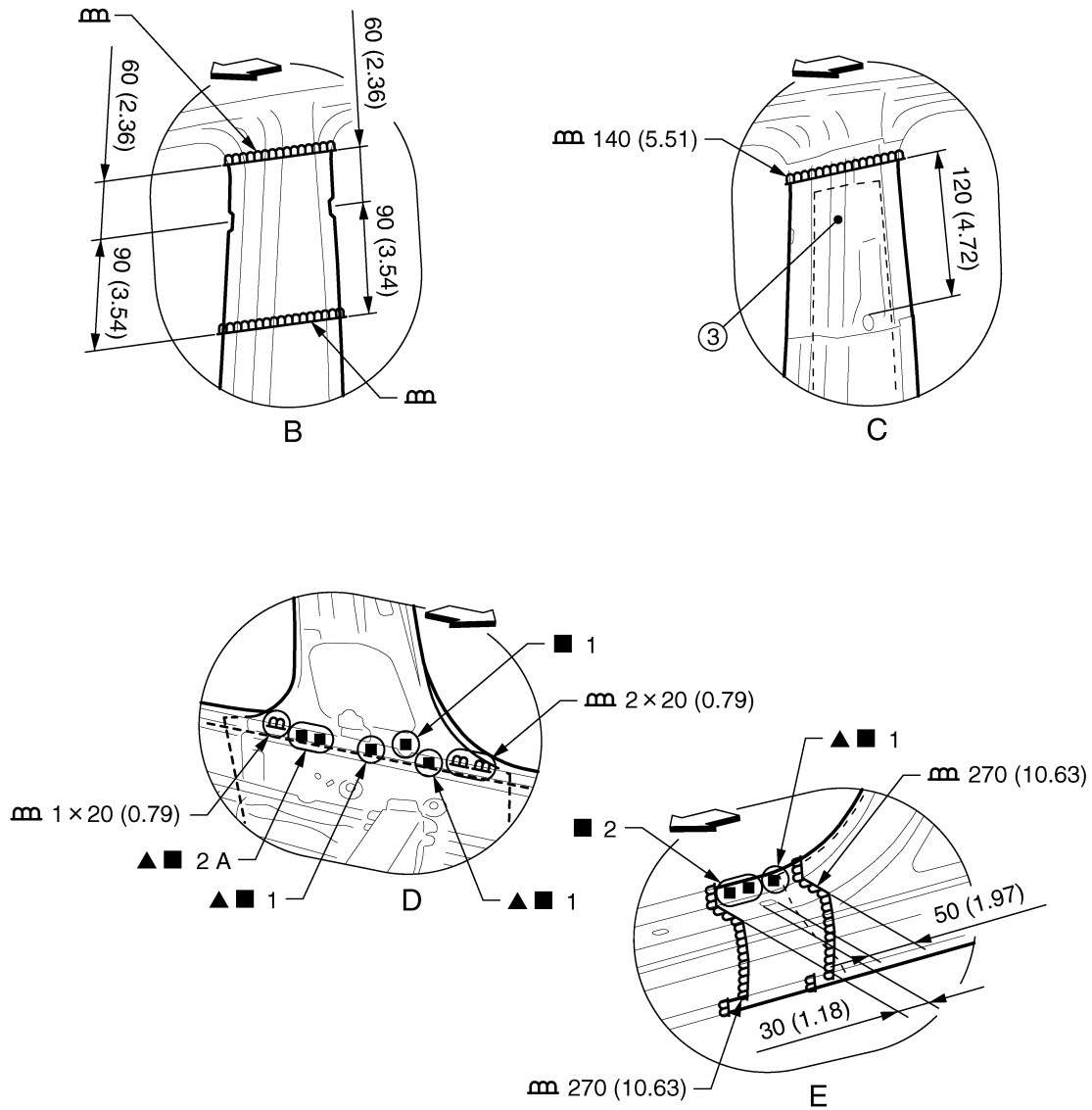
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

BRM

JSKIA0416GB

# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >



Unit: mm (in)

JSKIA0417GB

3. Center pillar reinforcement

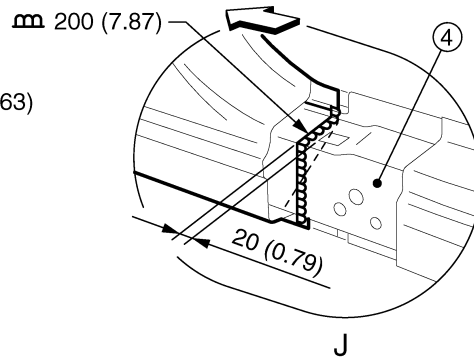
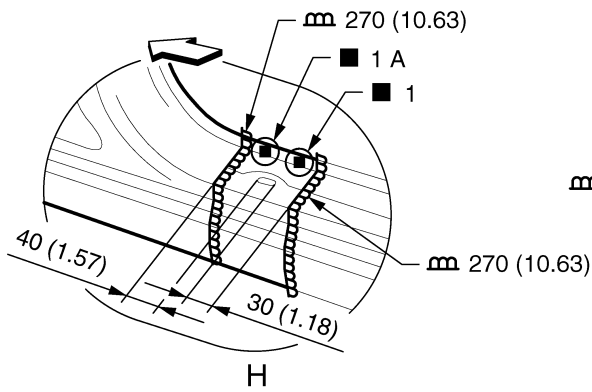
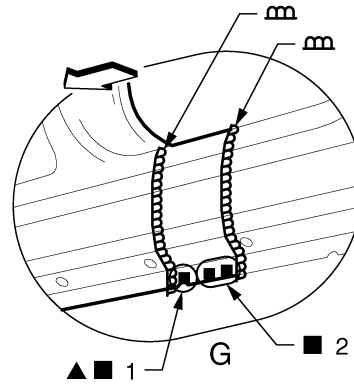
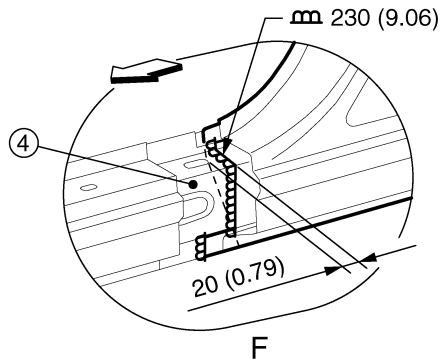
⇐ : Vehicle front

▲ : Drill  $\phi 9$  mm (0.35 in) hole for the plug welding hole (ultra high strength plate).

View C: Before installing outer front side body

# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >



Unit: mm (in)

4. Outer sill reinforcement

↔ : Vehicle front

▲ : Drill  $\phi 9$  mm (0.35 in) hole for the plug welding hole (ultra high strength plate).

View F, J: Before installing outer front side body

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

BRM

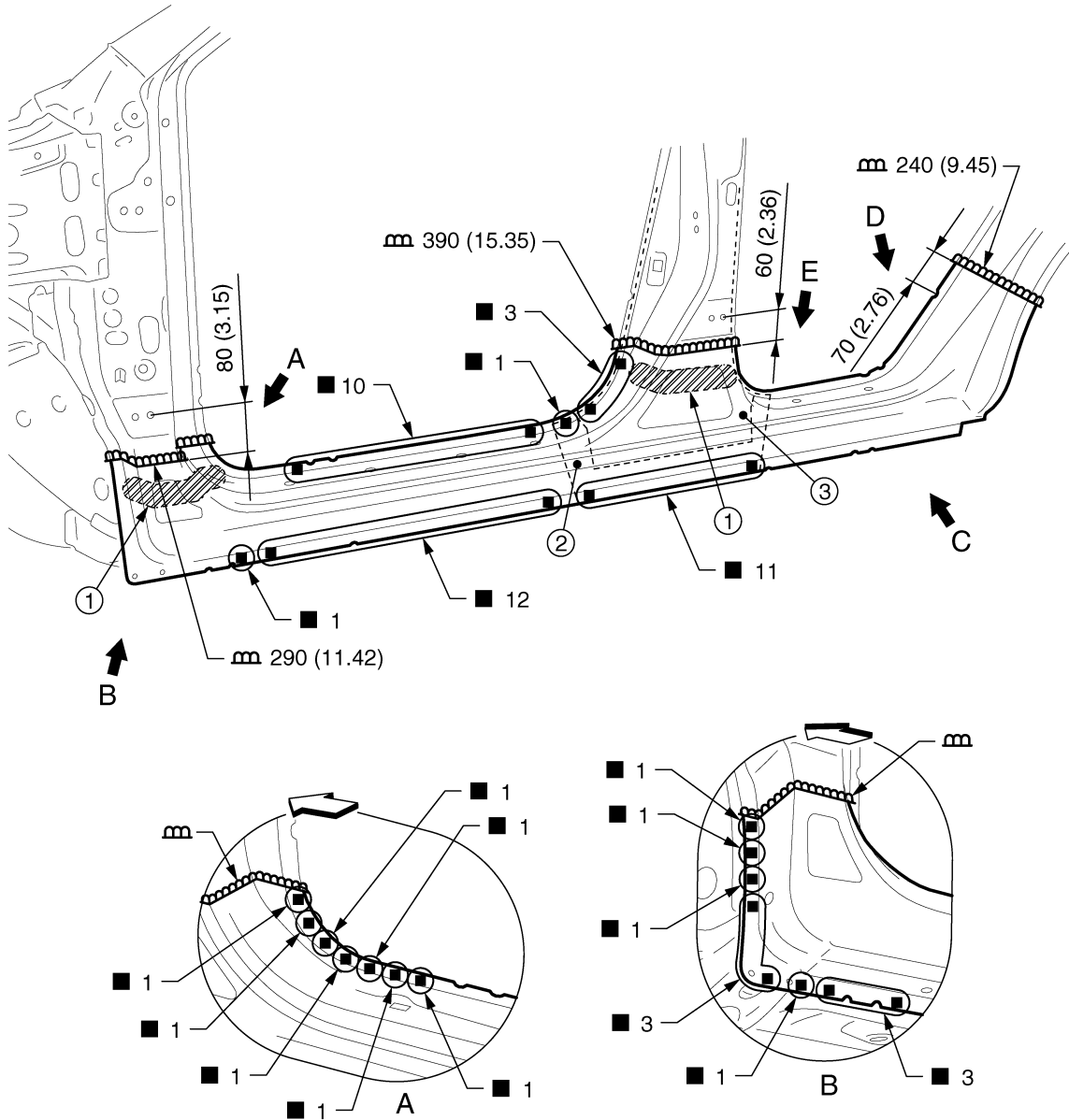
JSKIA0418GB

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

## Outer Sill

INFOID:000000004231332



Unit: mm (in)

JSKIA0419GB

1. Urethane foam

2. Inner center pillar

3. Lower center pillar brace

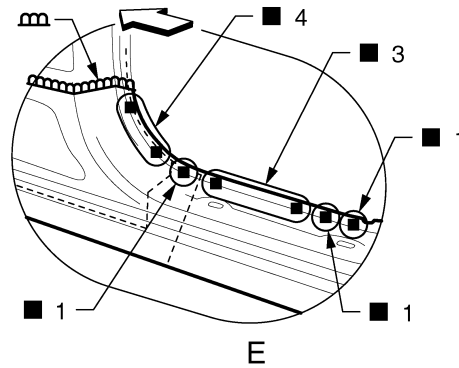
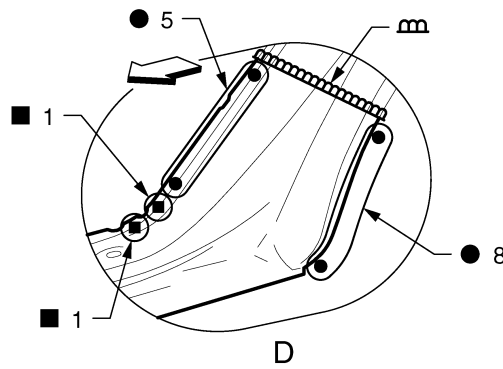
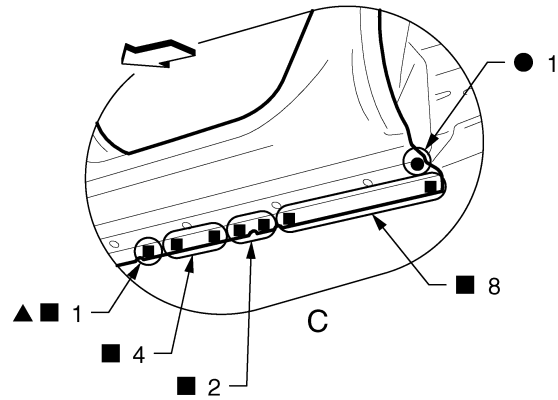
⇐ : Vehicle front

Replacement parts

● Outer sill (LH)

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



A

B

C

D

E

F

G

H

I

J

BRM

L

M

N

O

P

JSKIA0420GB

← : Vehicle front

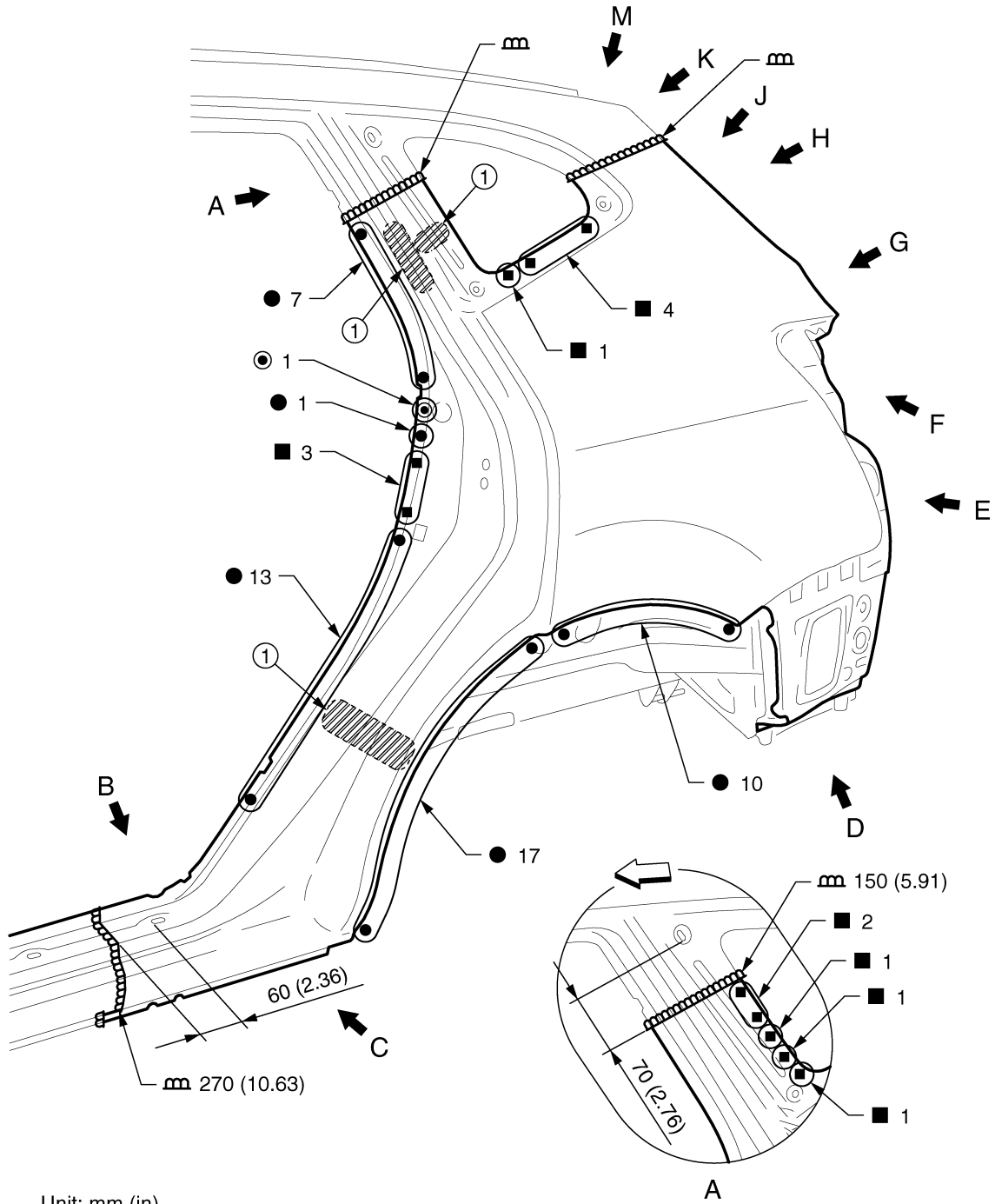
## Rear Fender

INFOID:000000004231333

Remove the rear combination lamp base from the rear fender assembly service part for easier installation.

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



Unit: mm (in)

JSKIA0421GB

1. Urethane foam

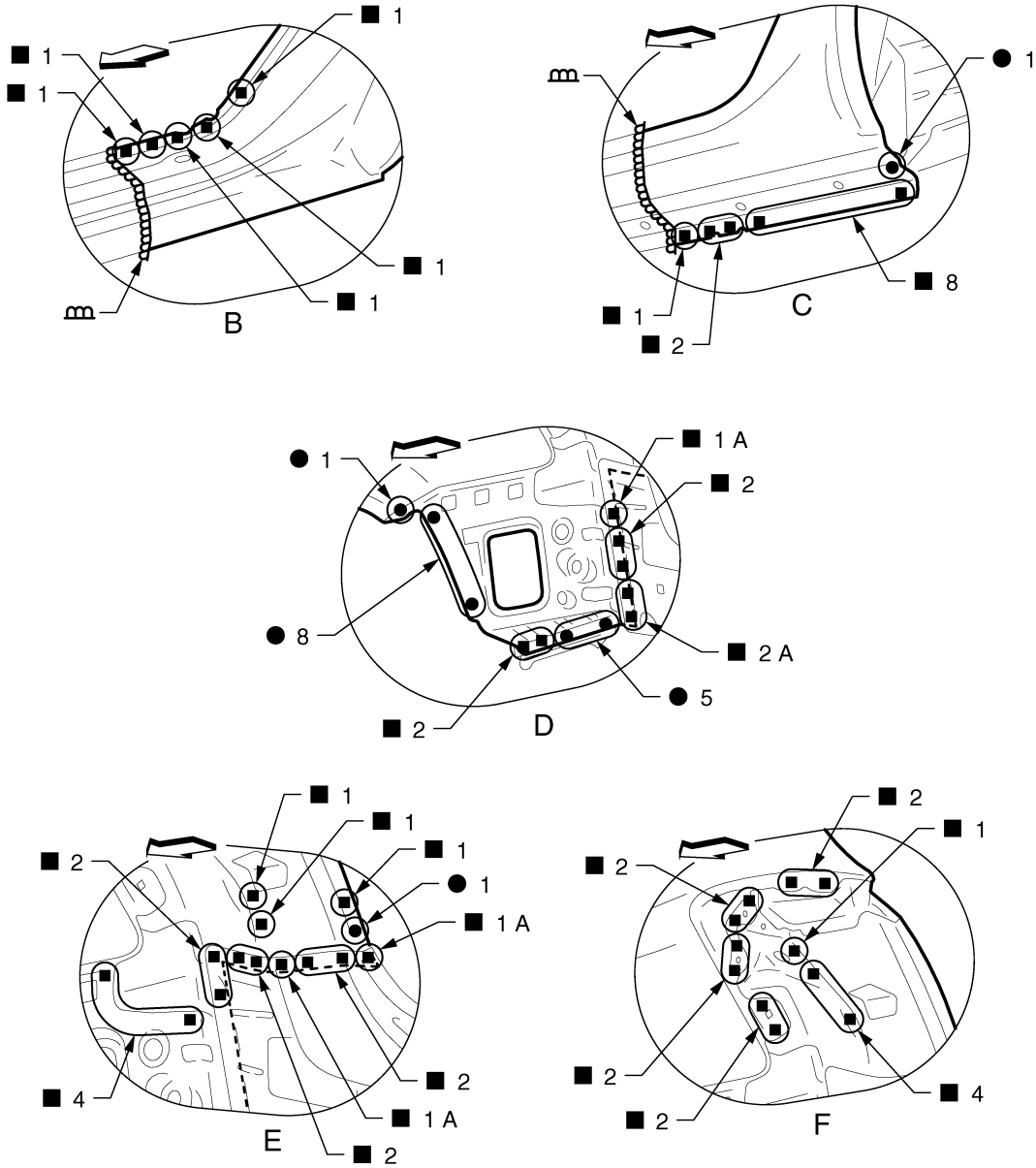
↔ : Vehicle front

Replacement parts

- Rear fender assembly (LH)

# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >



← : Vehicle front

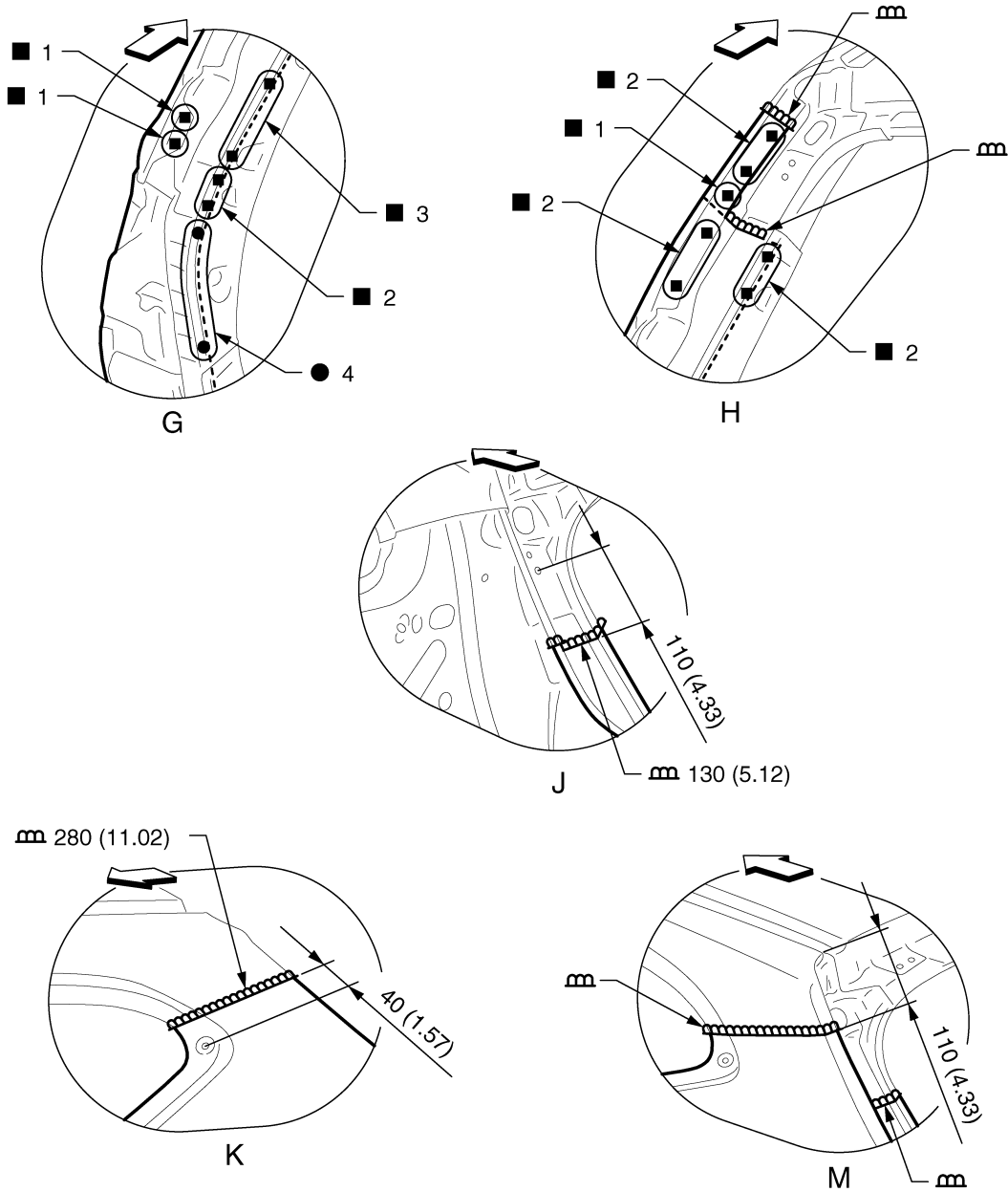
JSKIA0422GB

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

BRM

# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >



Unit: mm (in)

JSKIA0423GB

← : Vehicle front

View J: Before installing rear fender

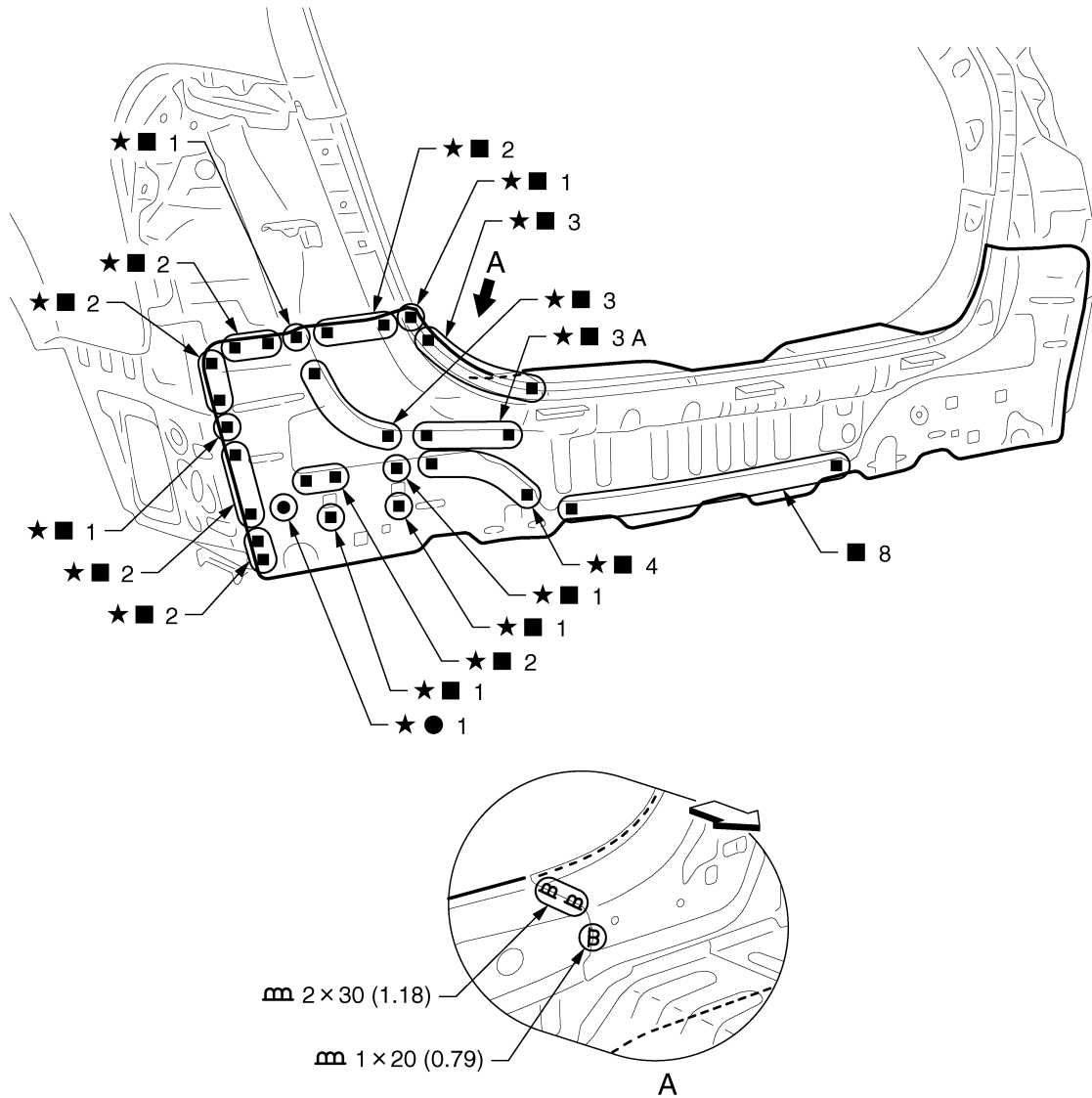


# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

## Rear Panel

INFOID:000000004231334



A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
BRM  
L  
M  
N  
O  
P

Unit: mm (in)

JSKIA0424GB

⇐ : Vehicle front

★ : An equivalent welding portion with the same dimensions is on the opposite side.

Replacement parts

● Rear panel assembly

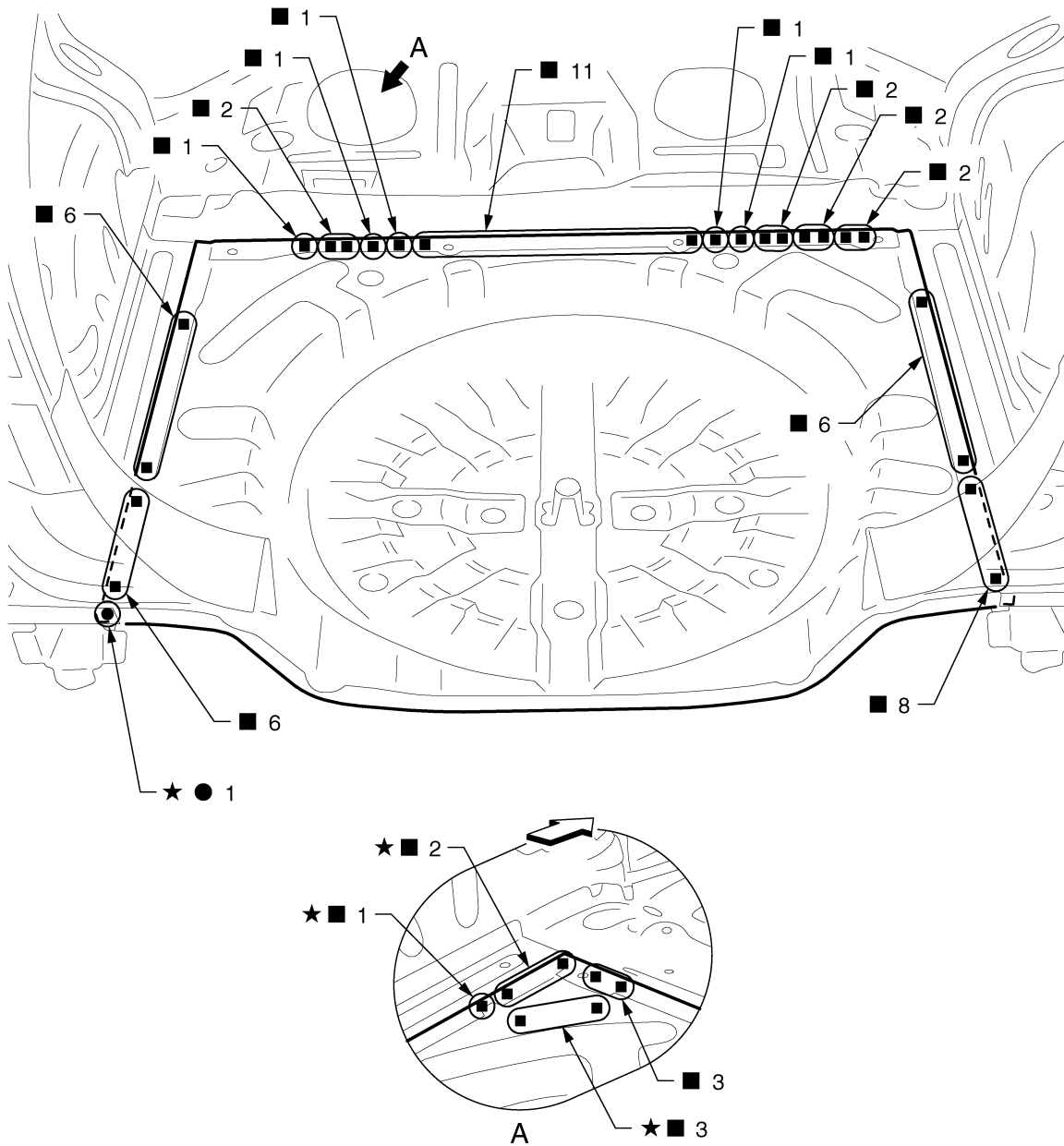
## Rear Floor Rear

INFOID:000000004231335

Work after rear panel has been removed.

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



JSKIA0425GB

← : Vehicle front

★ : An equivalent welding portion with the same dimensions is on the opposite side.

Replacement parts

● Rear floor rear

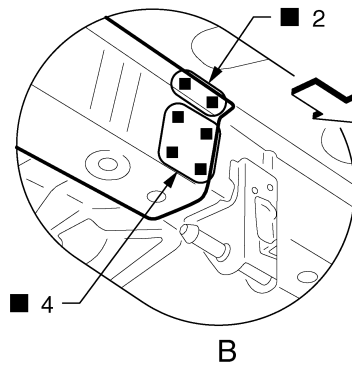
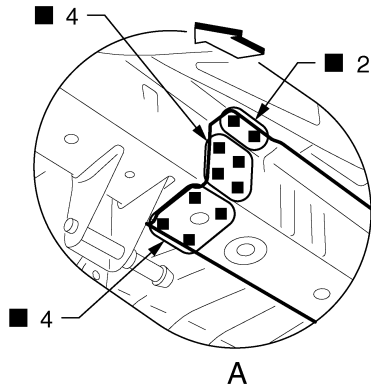
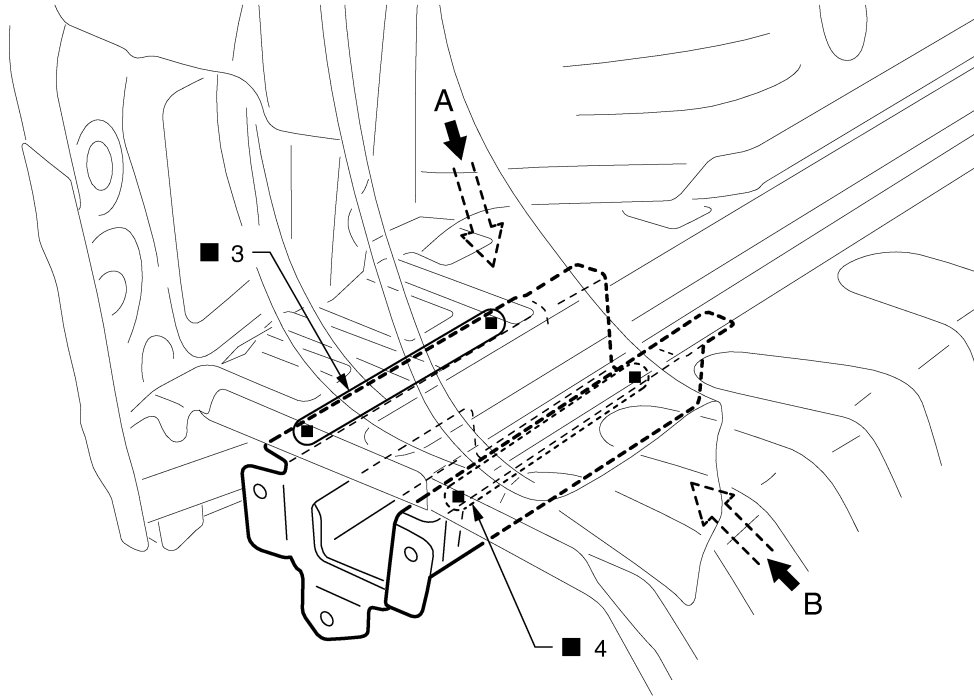
## Rear Side Member Extension

INFOID:000000004231336

Work after rear panel has been removed.

# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >



← : Vehicle front

Replacement parts

- Rear side member extension (LH)

JSKIA0426GB

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
BRM  
L  
M  
N  
O  
P