

SECTION **BRM**  
 BODY REPAIR

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# BODY EXTERIOR PAINT COLOR

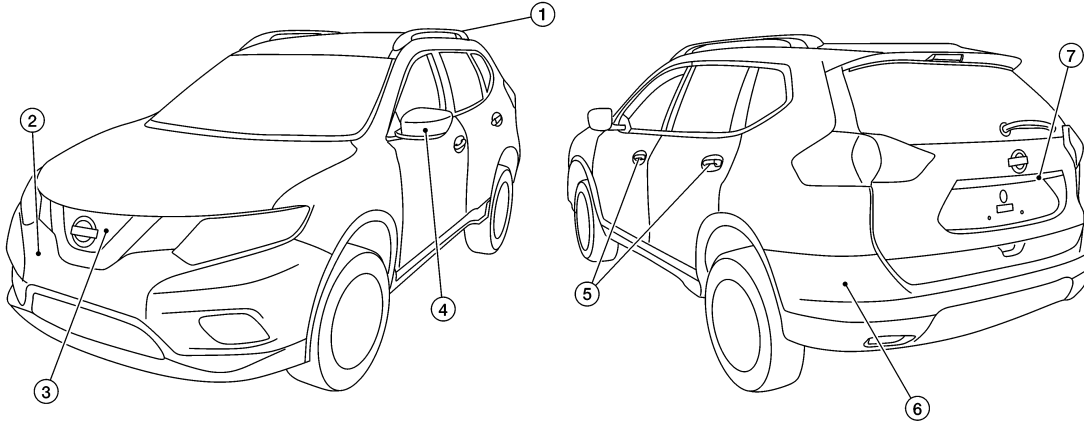
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## VEHICLE INFORMATION

### BODY EXTERIOR PAINT COLOR

Body Exterior Paint Color

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Component		Color code	EAN	K23	KAD	G41	QAK	NAH	QAB	RBG
		Description	Green	Silver	Gray	Black	White	Red	White	Dark Blue
		Paint type	M	M	M	M	2S	M	3P	M
		Hard clear coat	t	t	t	t	t	t	t	t
1.	Roof rack	Silver	K23	K23	K23	K23	K23	K23	K23	K23
2.	Front bumper fascia	Body color	EAN	K23	KAD	G41	QAK	NAH	QAB	RBG
3.	Front grille	Black/Chromium plate	(—)/ Cr2P	(—)/ Cr2P	(—)/ Cr2P	(—)/ Cr2P	(—)/ Cr2P	(—)/ Cr2P	(—)/ Cr2P	(—)/ Cr2P
4.	Door mirror finisher	Body color	EAN	K23	KAD	G41	QAK	NAH	QAB	RBG
5.	Door outside handle	Chromium plate	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P
6.	Rear bumper fascia	Body color	EAN	K23	KAD	G41	QAK	NAH	QAB	RBG
7.	Back door finisher	Chromium plate	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P

M = Metallic, 2S = Solid and Clear, 3P = 3-coat pearl, t = TMAC clear coat

# PRECAUTIONS

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## PRECAUTION

### PRECAUTIONS

#### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

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The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

#### **WARNING:**

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

#### PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

#### **WARNING:**

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

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# REPAIRING HIGH STRENGTH STEEL

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## REPAIRING HIGH STRENGTH STEEL

### High Strength Steel (HSS)

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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
590 - 780 MPa	<ul style="list-style-type: none"> <li>• Side dash</li> <li>• Rear floor front sides</li> <li>• Rear side member assembly</li> <li>• Front side member closing plate assembly</li> <li>• Front side member</li> <li>• Hoodledge reinforcement</li> <li>• Front strut housing</li> <li>• Rear seat crossmember</li> <li>• Roof bow No. 1 reinforcement</li> <li>• Front roof rail</li> <li>• Inner side roof rail</li> <li>• Rear floor seat belt reinforcement</li> <li>• Front suspension mounting bracket</li> <li>• Rear side member assembly</li> </ul>
980 - 1350 MPa	<ul style="list-style-type: none"> <li>• Inner sill front extension</li> <li>• Outer sill reinforcement</li> <li>• Lower dash crossmember</li> <li>• Lower front pillar hinge brace</li> <li>• Upper front pillar</li> <li>• Inner sill</li> <li>• Center pillar reinforcement</li> <li>• Inner center pillar</li> <li>• Front bumper reinforcement assembly</li> <li>• Outer sill reinforcement</li> <li>• Lower front pillar hinge brace</li> <li>• Outer front pillar reinforcement</li> <li>• Rear bumper reinforcement</li> <li>• Rear bumper stay</li> </ul>

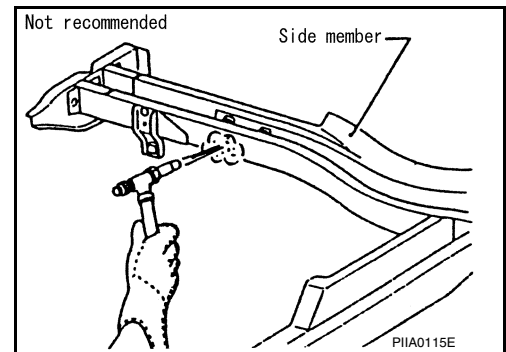
Read the following precautions when repairing HSS:

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.

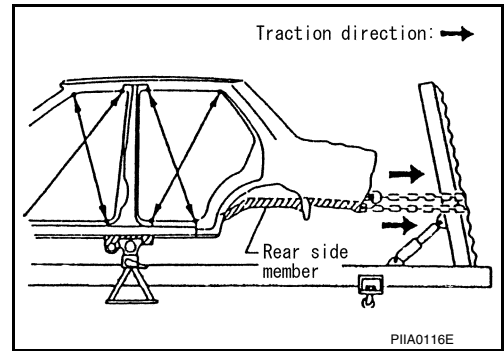
(Crayon-type and other similar type thermometer are appropriate.)



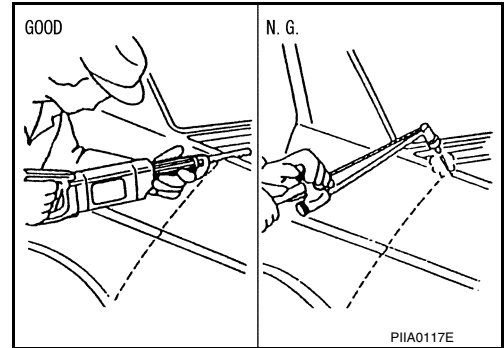
# REPAIRING HIGH STRENGTH STEEL

## < PRECAUTION >

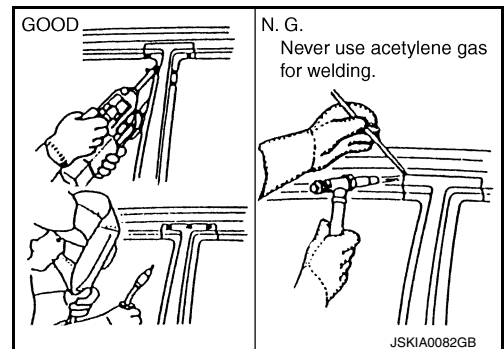
- When straightening body panels, use caution in pulling any HSS panel. Because HSS is very strong, pulling may cause deformation in adjacent portions of the body. In this case, increase the number of measuring points, and carefully pull the HSS panel.



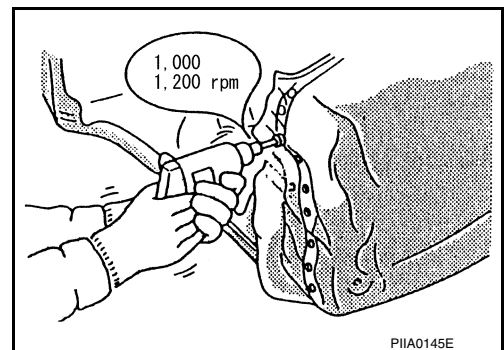
- When cutting HSS panels, avoid gas (torch) cutting if possible. Instead, use a saw to avoid weakening surrounding areas due to heat. If gas (torch) cutting is unavoidable, allow a minimum margin of 50 mm (1.97 in).



- 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.



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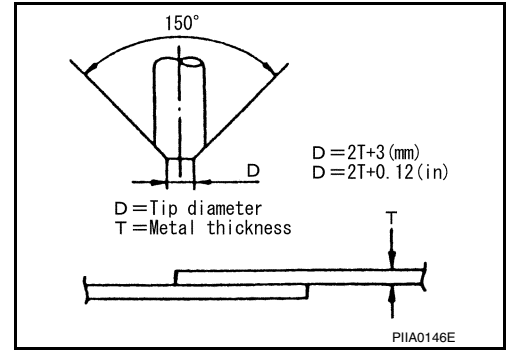
# REPAIRING HIGH STRENGTH STEEL

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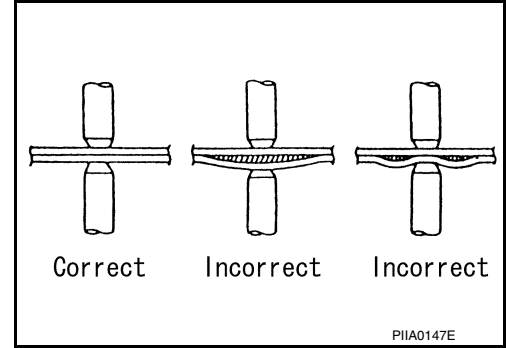
### 2. Precautions in spot welding HSS

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.



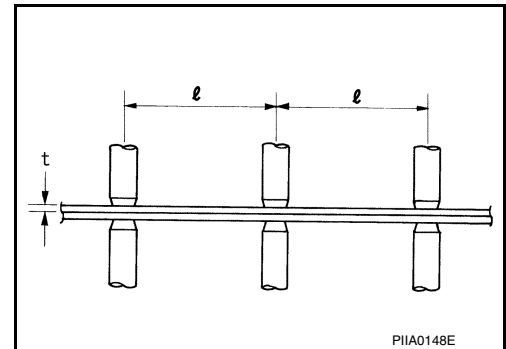
- The panel surfaces must fit flush to each other, leaving no gaps.



- 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



## Handling of Ultra High Strength Steel Plate Parts

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### PROHIBITION OF CUT AND CONNECTION

Never cut and Joint the stiffener front side member (front floor inside frame parts) because its material is high strength steel plate (ultra high strength steel plate).

The front floor assembly must be replaced if this part is damaged.

# LOCATION OF PLASTIC PARTS

< PRECAUTION >

## LOCATION OF PLASTIC PARTS

### Precautions for Plastics

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

**CAUTION:**

- 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.
- Plastic parts should be repaired and painted using methods suiting the materials' characteristics.

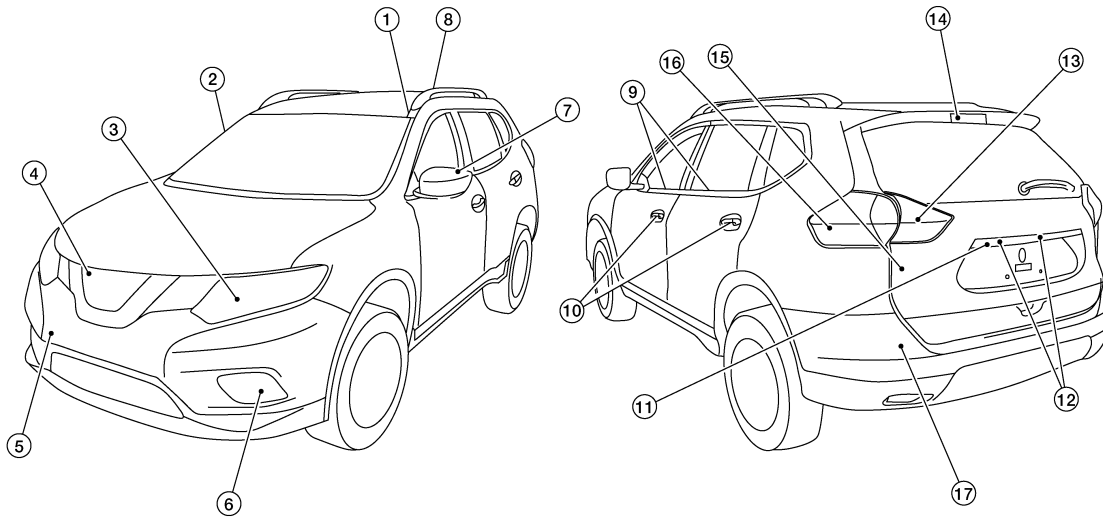
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# LOCATION OF PLASTIC PARTS

< PRECAUTION >

## Location of Plastic Parts

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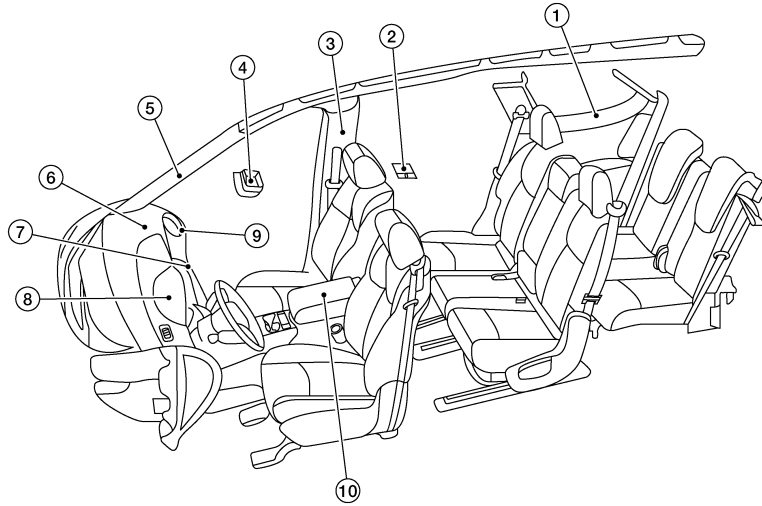
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Component		Material	Component		Material
1.	Roof side molding	PVC + Stainless	10.	Door outside handle	PC + ABS
2.	Windshield molding	PVC	11.	Back door finisher	ABS
3.	Front combination lamp	Lens	12.	License plate lamp	Lens
		Housing			Housing
4.	Front grille	ABS	13.	Back up lamp	Lens
5.	Front bumper fascia	PP + EPM			Housing
6.	Front fog lamp	Lens	14.	High-mounted stop lamp	Lens
		Housing			Housing
7.	Door mirror	Finisher	15.	Back door	PP
		Housing	16.	Rear combination lamp	Lens
		Base			Housing
8.	Roof rack finisher	AES	17.	Rear bumper fascia	PP + EPM
9.	Door outside molding	PVC + Stainless			



# LOCATION OF PLASTIC PARTS

< PRECAUTION >



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

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# REPAIRING MATERIAL

< PREPARATION >

## PREPARATION

### REPAIRING MATERIAL

#### Foam Repair

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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 Urethane foam for sealant (foam material) repair of material used on vehicle.

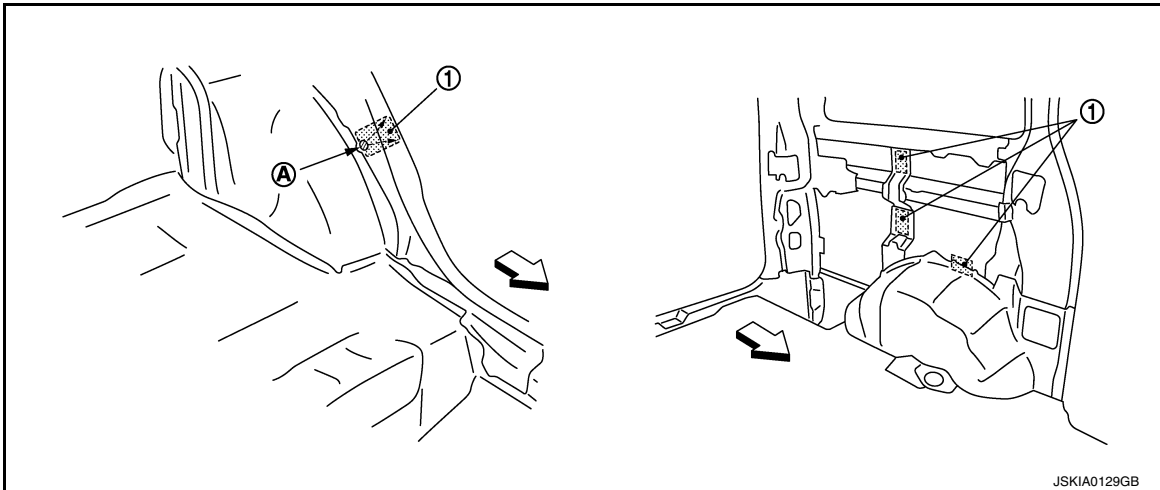
<Urethane foam for foaming agent>

**3M™ Automix™ Flexible Foam 08463 or equivalent**

Read instructions on product for fill procedures.

Example of foaming agent filling operation procedure

1. Fill procedures after installation of service part.
  - a. Eliminate foam material remaining on vehicle side.
  - b. Clean area after eliminating form insulator and foam material.
  - c. Install service part.
  - d. Insert nozzle into hole near fill area and fill foam material or fill enough to close gap with the service part.



1. Urethane foam

A. Nozzle insert hole

← Front

2. Fill procedures before installation of service part.
  - a. Eliminate foam material remaining on vehicle side.
  - b. Clean area after eliminating foam insulator and foam material.
  - c. Fill foam material on wheelhouse outer side.

1. Urethane foam

A. Fill while avoiding flange area

← Front

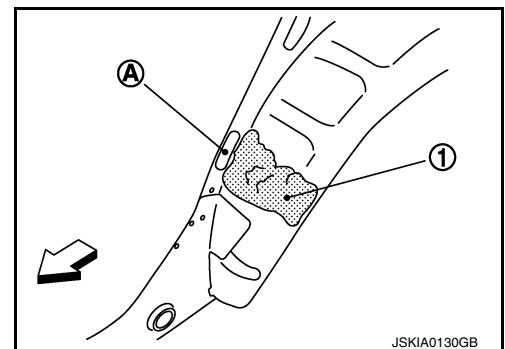
#### NOTE:

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

- d. Install service part.

#### NOTE:

Refer to label for information on working times.



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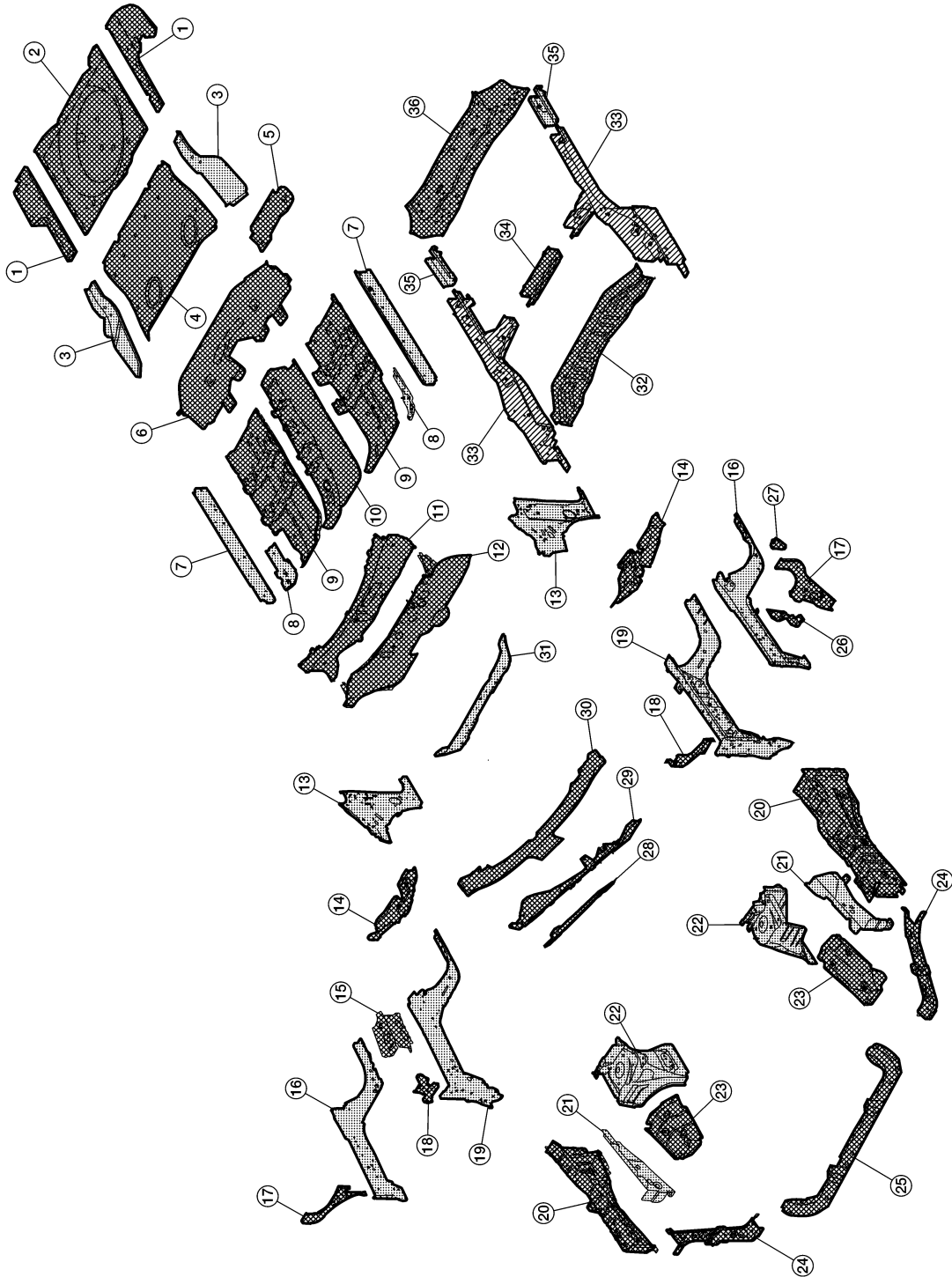
# BODY COMPONENT PARTS

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## BODY COMPONENT PARTS


### Underbody Component Parts

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 Both sided anti-corrosive pre-coated steel portions

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# BODY COMPONENT PARTS

## < PREPARATION >

-  High strength steel (HSS) portions: 440 MPa
-  Both sided anti-corrosive steel and HSS portions: 440 MPa

No.	Parts name	Tensile strength (MPa)	Both sided anti-corrosive pre-coated steel sections	Aluminum portion
1.	Rear floor rear side (LH/RH)	Under 440	X	—
2.	Rear floor rear	Under 440	X	—
3.	Rear floor front sides (LH/RH)	780	X	—
4.	Rear floor front	Under 440	X	—
5.	Rear floor seat belt reinforcement	590	X	—
6.	Rear floor front extension	Under 440	X	—
7.	Inner sill (LH/RH)	980	X	—
8.	Inner sill front extension (LH/RH)	980	X	—
9.	Front floor (LH/RH)	Under 440	X	—
10.	Center front floor	Under 440	X	—
11.	Upper dash	Under 440	X	—
12.	Lower dash	Under 440	X	—
13.	Side dash (LH/RH)	590	X	—
14.	Front suspension mounting bracket (LH/RH)	590	X	—
15.	Engine member mounting bracket	Under 440	X	—
16.	Front side member closing plate assembly (LH/RH)	590	X	—
17.	Radiator upper side panel (LH/RH)	Under 440	X	—
18.	Radiator lower bracket (LH/RH)	Under 440	X	—
19.	Front side member (LH/RH)	590	X	—
20.	Upper hoodledge (LH/RH)	440	X	—
21.	Hoodledge reinforcement (LH/RH)	590	X	—
22.	Front strut housing (LH/RH)	590	X	—
23.	Front strut housing extension (LH/RH)	Under 440	X	—
24.	Headlight panel (LH/RH)	Under 440	X	—
25.	Lower radiator lower assembly (LH/RH)	Under 440	X	—
26.	Front side member extension (LH/RH)	440	X	—
27.	Front side member bracket (LH/RH)	Under 440	X	—
28.	Front of dash brace (LH/RH)	Under 440	X	—
29.	Upper dash crossmember assembly	440	X	—
30.	Cowl top reinforcement	440	X	—
31.	Lower dash crossmember	980	X	—
32.	Rear seat crossmember	590	X	—
33.	Rear side member assembly (LH/RH)	780	X	—
34.	Center rear crossmember	440	X	—
35.	Rear side member extension (LH/RH)	440	X	—
36.	Rear end panel	Under 440	X	—

### CAUTION:

If the high strength steel (ultra high strength steel) of this is broken, replace by assembly for the supply part.

### NOTE:

- For the parts without a number described in the figure, it is supplied only with the assembly part that the part is included with.

# BODY COMPONENT PARTS

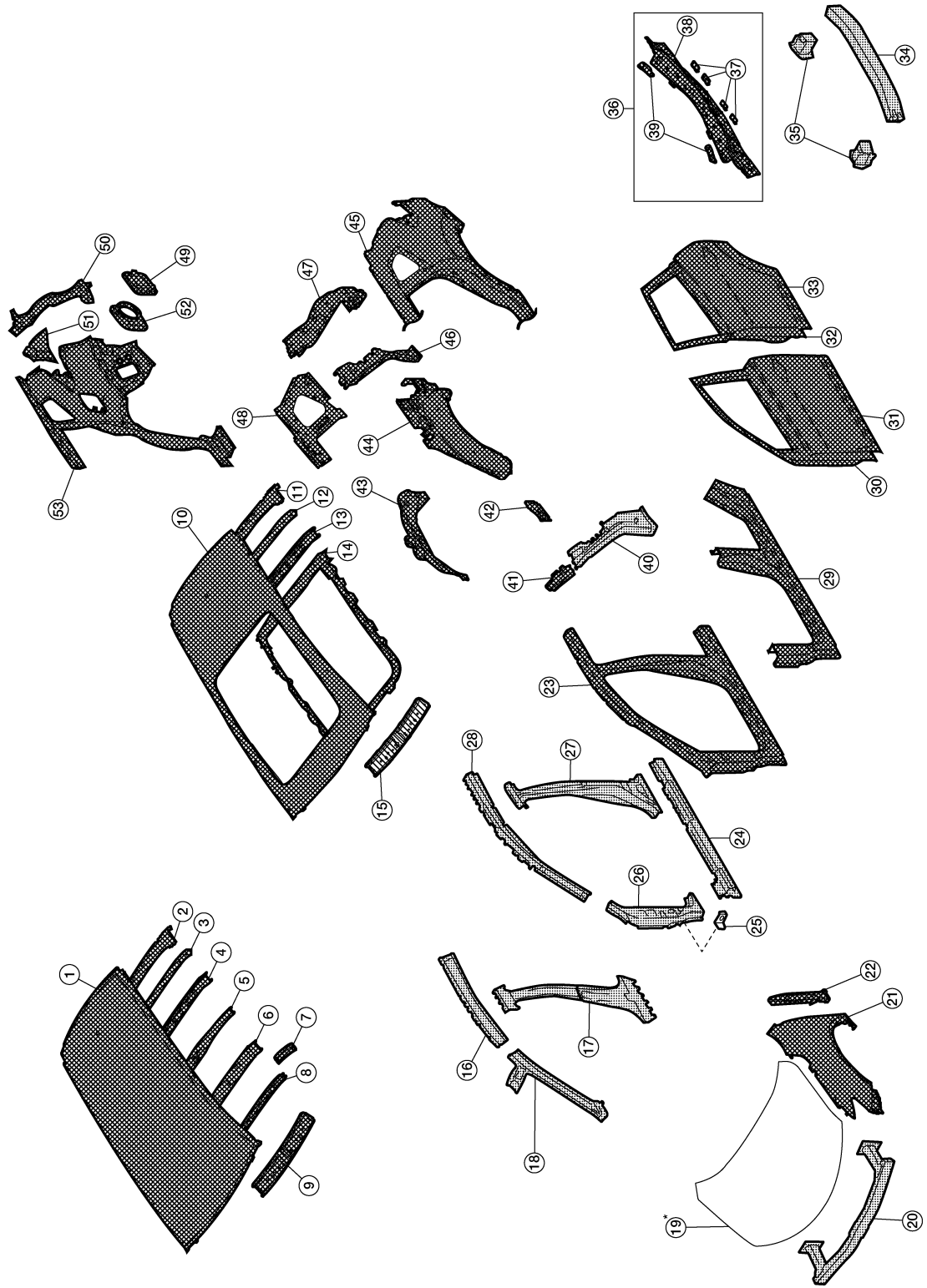
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- Tensile strength column shows the largest strength value of a part in the component part.

## Body Component Parts

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- Both sided anti-corrosive pre-coated steel portions
- High strength steel (HSS) portions

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## BODY COMPONENT PARTS

### < PREPARATION >

 Both sided anti-corrosive steel and HSS portions

\* Aluminum portion

No.	Parts name	Tensile strength (MPa)	Both sided anti-corrosive pre-coated steel sections	Aluminum portion
1.	Standard roof	Under 440	X	—
2.	Rear roof rail	Under 440	X	—
3.	Roof bow No. 5	Under 440	X	—
4.	Roof bow No. 4	Under 440	X	—
5.	Roof bow No. 3	Under 440	X	—
6.	Roof bow No. 2	Under 440	X	—
7.	Roof bow No.1 reinforcement (LH/RH)	590	X	—
8.	Roof bow No. 1	Under 440	X	—
9.	Front roof rail	590	X	—
10.	Moonroof	Under 440	X	—
11.	Rear roof rail	Under 440	X	—
12.	Roof bow No. 2	Under 440	X	—
13.	Roof bow No. 1	Under 440	X	—
14.	Moonroof reinforcement	Under 440	X	—
15.	Front roof rail	980	X	—
16.	Inner side roof rail (LH/RH)	590	X	—
17.	Inner center pillar (LH/RH)	980	X	—
18.	Upper inner front pillar (LH/RH)	980	X	—
19.	Hood	—	—	X
20.	Front bumper reinforcement assembly	980	X	—
21.	Front fender (LH/RH)	Under 440	X	—
22.	Front fender brace (LH/RH)	Under 440	X	—
23.	Front side body (LH/RH)	Under 440	X	—
24.	Outer sill reinforcement (LH/RH)	980	X	—
25.	Front fender bracket (LH/RH)	Under 440	X	—
26.	Lower front pillar hinge brace (LH/RH)	980	X	—
27.	Center pillar reinforcement (LH/RH)	980	X	—
28.	Outer front pillar reinforcement (LH/RH)	980	X	—
29.	Outer sill (LH/RH)	Under 440	X	—
30.	Front door assembly (LH/RH)	Under 440	X	—
31.	Outer front door panel (LH/RH)	Under 440	X	—
32.	Rear door assembly (LH/RH)	Under 440	X	—
33.	Outer rear door panel (LH/RH)	Under 440	X	—
34.	Rear bumper reinforcement	980	X	—
35.	Rear bumper stay (LH/RH)	980	X	—
36.	Rear panel assembly	Under 440	X	—
37.	Upper rear bumper retainer	Under 440	X	—
38.	Rear panel	Under 440	X	—
39.	Rear panel reinforcement	Under 440	X	—

## BODY COMPONENT PARTS

### < PREPARATION >

No.	Parts name	Tensile strength (MPa)	Both sided anti-corrosive pre-coated steel sections	Aluminum portion	
40.	Inner rear pillar reinforcement (LH/RH)	980	X	—	A
41.	Inner rear pillar upper reinforcement (LH/RH)	980	X	—	B
42.	Outer rear wheelhouse extension (LH/RH)	Under 440	X	—	
43.	Inner rear wheelhouse (LH/RH)	Under 440	X	—	C
44.	Outer rear wheelhouse (LH/RH)	Under 440	X	—	
45.	Rear fender (LH)	Under 440	X	—	D
46.	Back pillar reinforcement (LH/RH)	Under 440	X	—	
47.	Back pillar main assembly (LH/RH)	Under 440	X	—	
48.	Inner rear pillar (LH/RH)	590	X	—	E
49.	Fuel filler lid	Under 440	X	—	
50.	Back pillar outer (LH/RH)	Under 440	X	—	F
51.	Rear combination lamp base (LH/RH)	Under 440	X	—	
52.	Fuel filler base	Under 440	X	—	
53.	Rear fender (RH)	Under 440	X	—	G

**CAUTION:**

If the high strength steel (ultra high strength steel) is bent or broken, replace by assembly for the supply part.

**NOTE:**

- For the parts without a number described in the figure, it is supplied only with the assembly part that the part is included with.
- Tensile strength column shows the largest strength value of a part in the component part.

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# CORROSION PROTECTION

< REMOVAL AND INSTALLATION >

## REMOVAL AND INSTALLATION

### CORROSION PROTECTION

#### Description

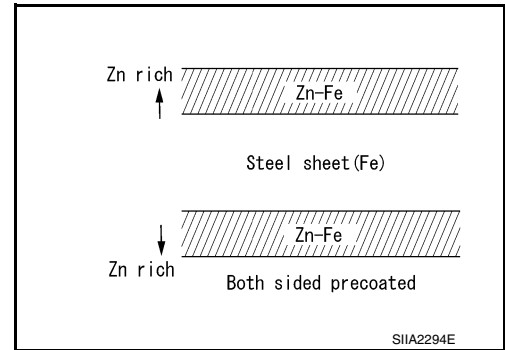
INFOID:000000012424330

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.



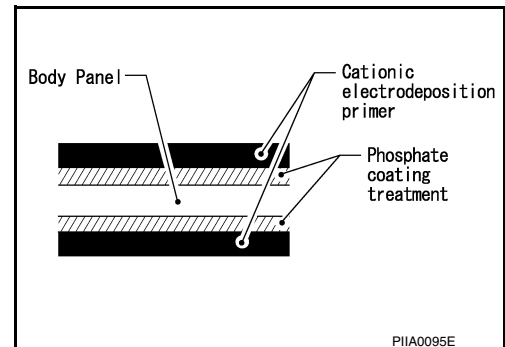
NISSAN Genuine Service Parts are fabricated from galvannealed steel. Therefore, it is recommended that GENUINE NISSAN PARTS or equivalent be used for panel replacement to maintain the anti-corrosive performance built into the vehicle at the factory.

#### 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:000000012424331

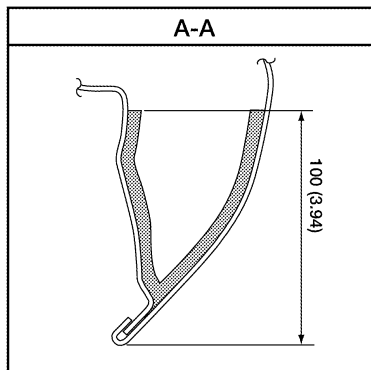
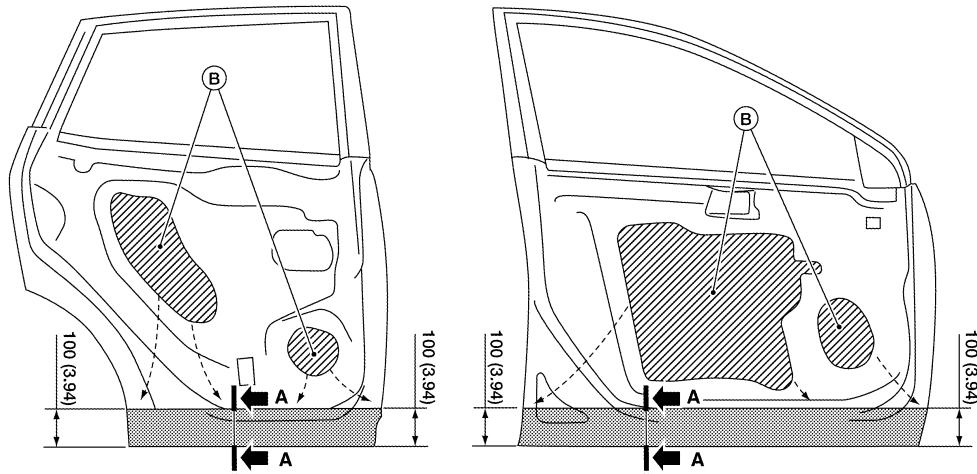
To improve corrosion resistance, anti-corrosive wax is applied inside the body sill and inside other closed sections. Accordingly, when replacing these parts, be sure to apply anti-corrosive wax to the appropriate areas of the new parts. Select an excellent anti-corrosive wax which will penetrate after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

#### DOOR



# CORROSION PROTECTION

## < REMOVAL AND INSTALLATION >



AWKIA2823ZZ

Unit: mm (in)

B. Nozzle insert hole

Anti-corrosive wax coated portions

## Undercoating

INFOID:0000000012424332

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. Never apply undercoating to any place unless specified (such as the areas above the muffler and three way catalyst which are subjected to heat).
2. Never undercoat the exhaust pipe or other parts which become hot.
3. Never undercoat rotating parts.
4. Apply bitumen wax after applying undercoating.
5. After putting seal on the vehicle, put undercoating on it.

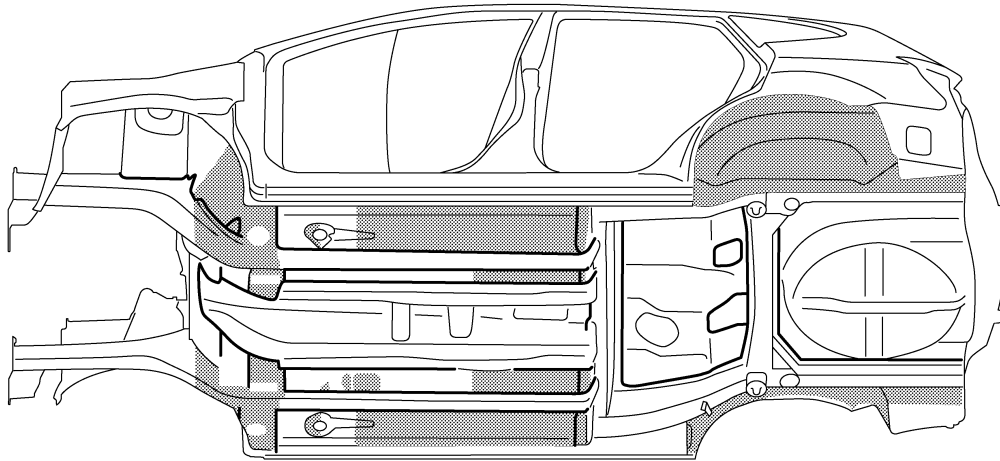
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# CORROSION PROTECTION


## < REMOVAL AND INSTALLATION >

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AWKIA3644ZZ

 Undercoated portions (for all destination)

 Sealed portions

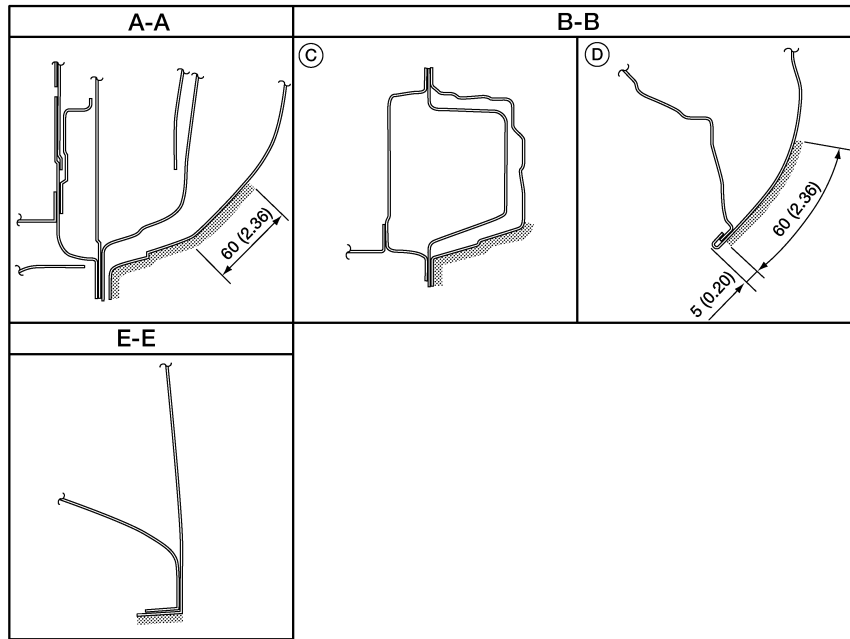
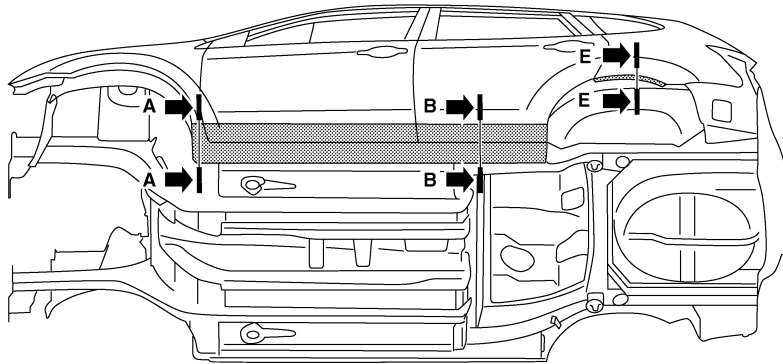
### Stone Guard Coat

INFOID:0000000012424333

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 >



C. Outer sill portion

D. Door outer portion

 Stone guard coated portions

AWKIA2841ZZ

Unit: mm (in)

### Body Sealing

INFOID:0000000012424334

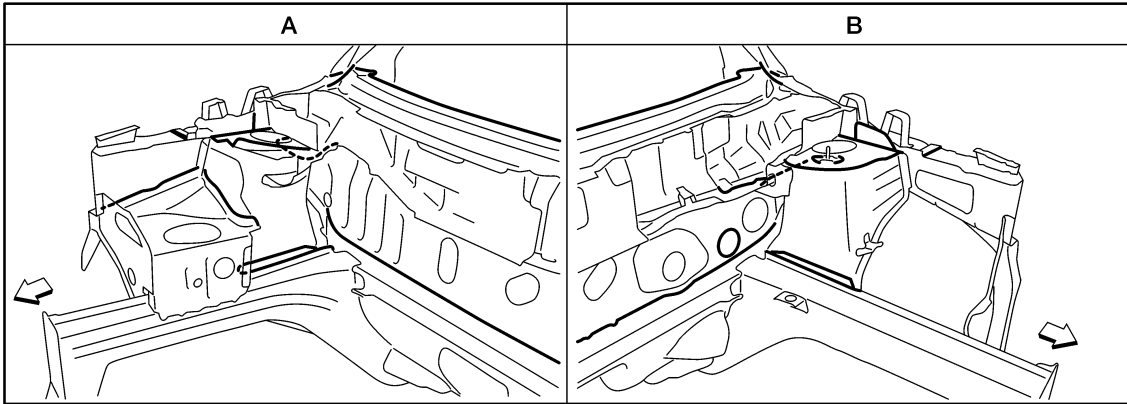
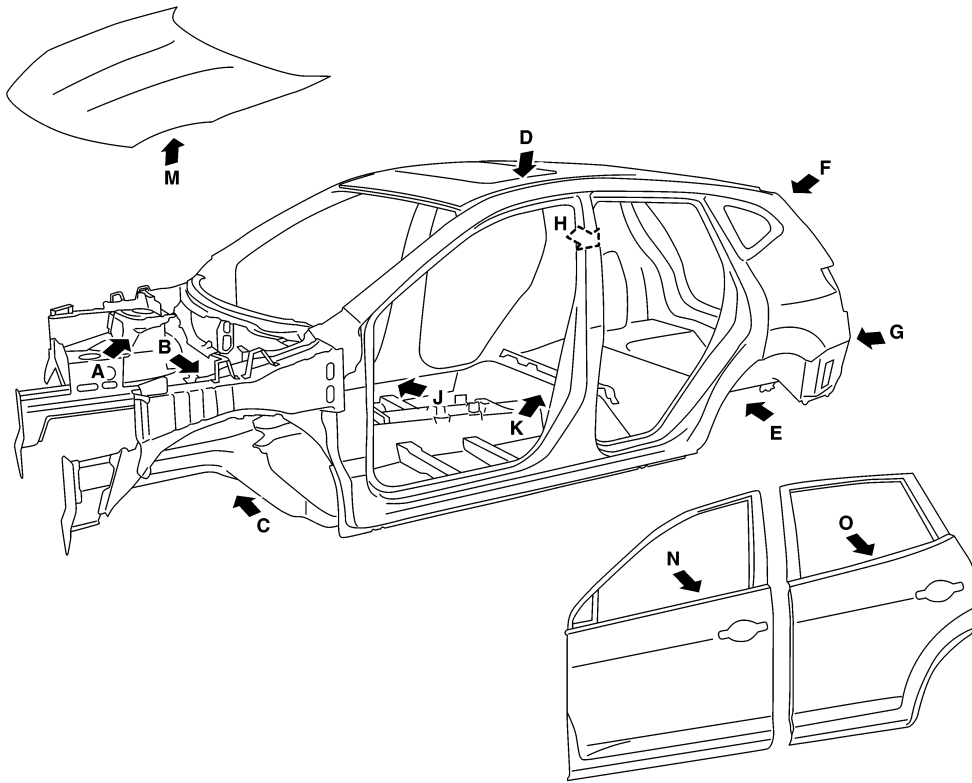
The following figure shows the areas which are sealed at the factory. Sealant which has been applied to these areas should be smooth and free from cuts or gaps. Care should be taken not to apply an excess amount of sealant and not to allow other unaffected parts to come into contact with the sealant.

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# CORROSION PROTECTION

## < REMOVAL AND INSTALLATION >



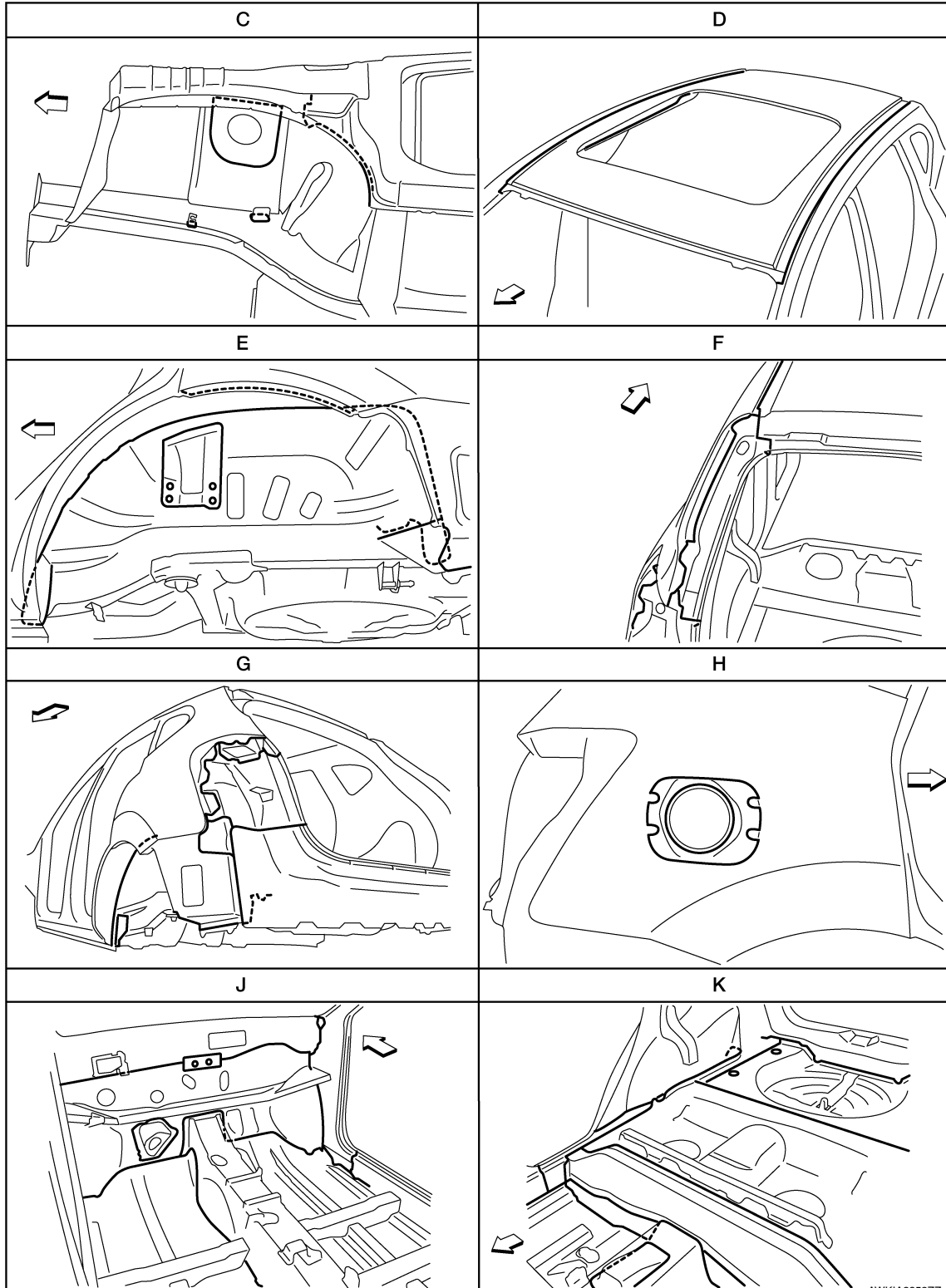
AWKIA2898ZZ

← Front

— Sealed portions

# CORROSION PROTECTION

## < REMOVAL AND INSTALLATION >



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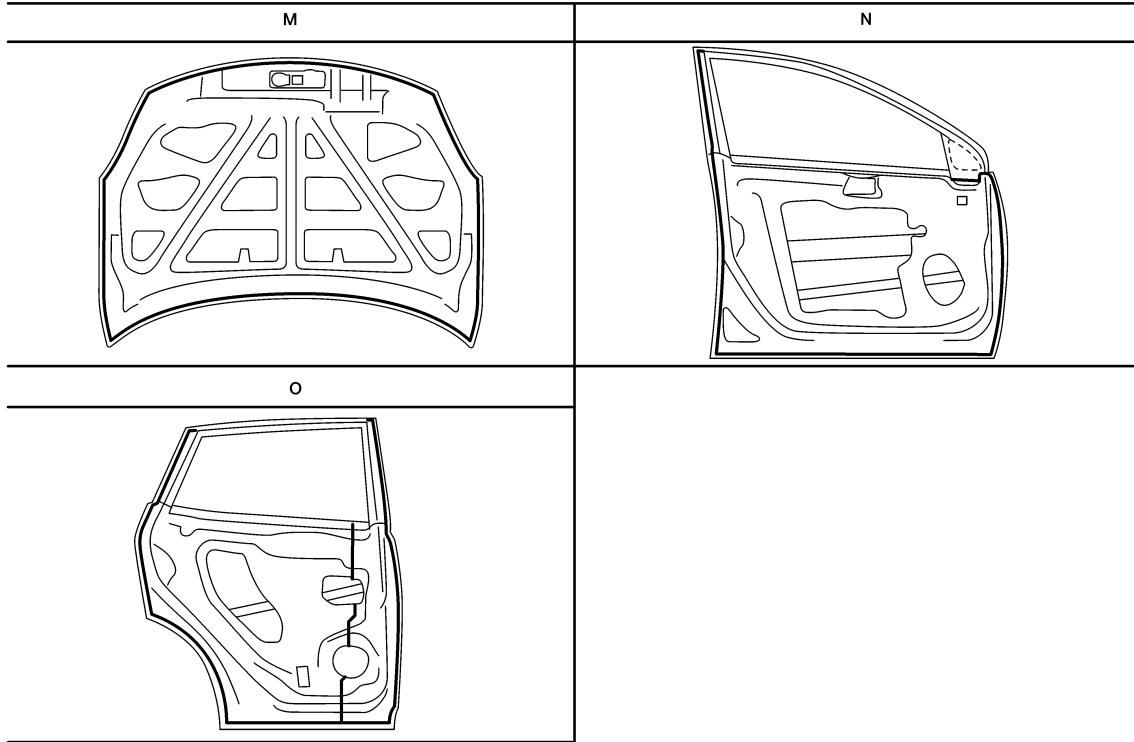
BRM

← Front

— Sealed portions

# CORROSION PROTECTION

< REMOVAL AND INSTALLATION >



AWKIA2899ZZ

— Sealed portions

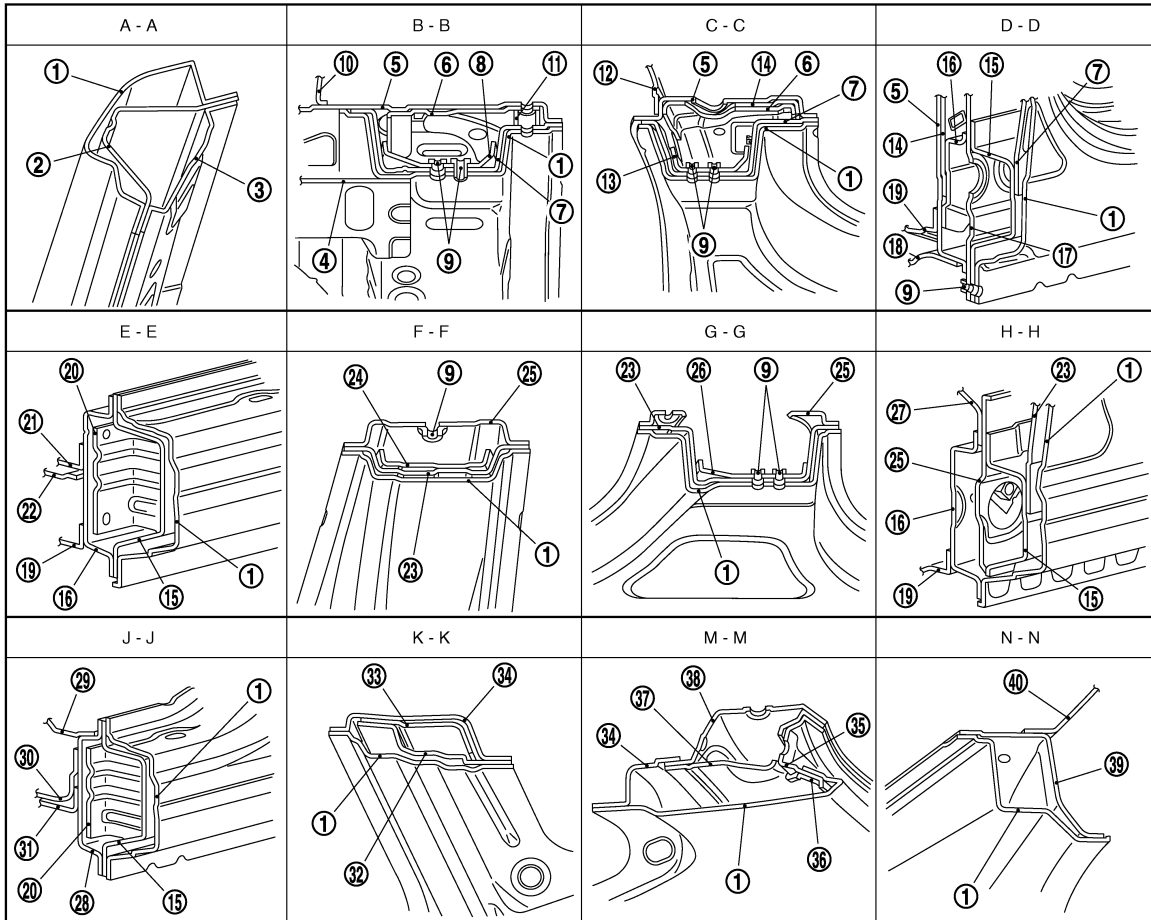
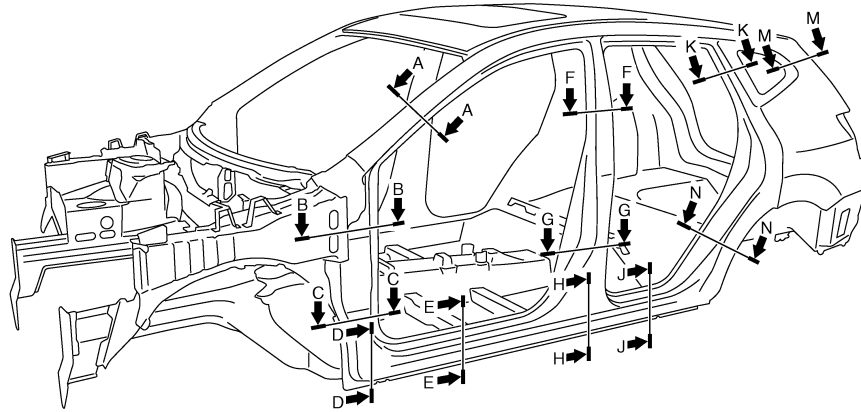
# BODY CONSTRUCTION

< REMOVAL AND INSTALLATION >

## BODY CONSTRUCTION

### Body Construction

INFOID:000000012424335



- |                                   |                                     |                                     |
|-----------------------------------|-------------------------------------|-------------------------------------|
| 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

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# 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           |                                      |                                  |

## Rear Fender Hemming Process

INFOID:000000012424336

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

### CAUTION:

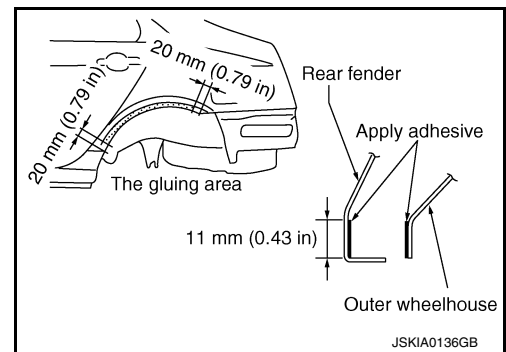
**Ensure that the area that is to be glued around the outer wheelhouse is undamaged or defaced.**

### PROCEDURE OF THE HEMMING PROCESS

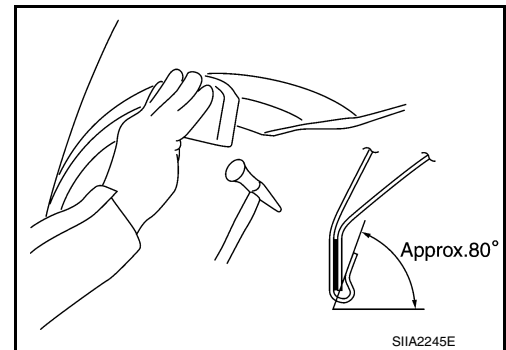
- Peel off old bonding material on the surface of the outer wheelhouse and clean thoroughly.
- Peel off a primer coat in the specified area where new adhesive is to be applied on rear fender (the replacing part).
- Apply new adhesive to both specified areas of the outer wheelhouse and rear fender.

**<Adhesive> 3M™ Automix™ Panel Bonding Adhesive 08115 or equivalent**

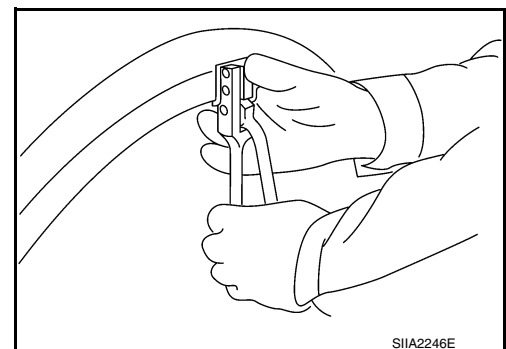
- Attach rear fender to the body of the car, and weld the required part except the hemming part.



- 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.

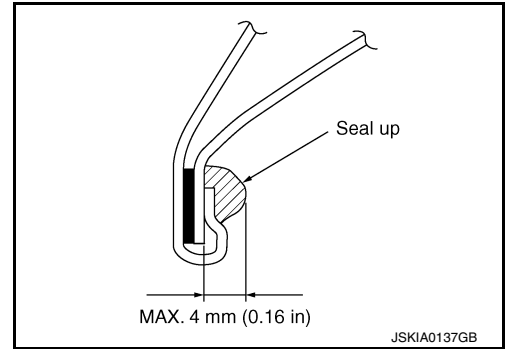




# BODY CONSTRUCTION

## < REMOVAL AND INSTALLATION >

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



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# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

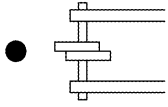
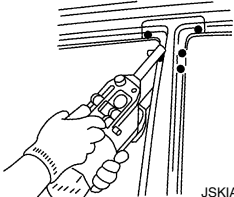
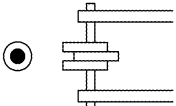
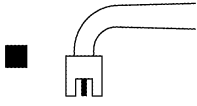



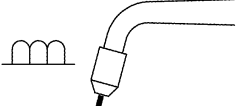
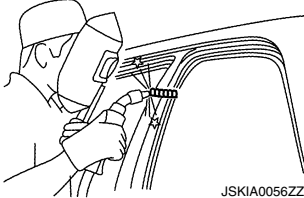
## REPLACEMENT OPERATIONS

### Description

INFOID:000000012424337

- 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.

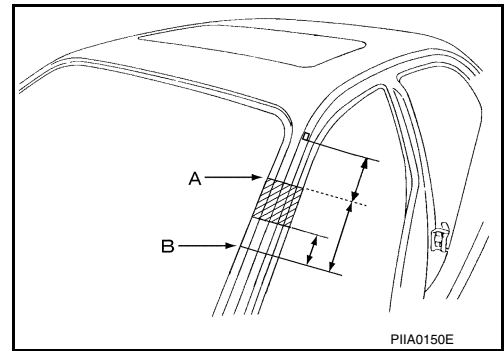
The symbols used in this section for welding operations are shown below.

Symbol marks	Description	
 <p data-bbox="402 844 490 861">JSKIA0049ZZ</p>	2-spot welds	 <p data-bbox="1291 970 1377 987">JSKIA0053ZZ</p>
 <p data-bbox="402 1096 490 1113">JSKIA0050ZZ</p>	3-spot welds	
 <p data-bbox="402 1474 490 1491">JSKIA0051ZZ</p>	MIG plug weld	 <p data-bbox="1291 1348 1377 1365">JSKIA0054ZZ</p> <p data-bbox="1006 1381 1318 1407">For 3 panels plug weld method</p> <div style="display: flex; flex-direction: column; align-items: center;"> <div data-bbox="1144 1438 1307 1480"> <p data-bbox="1144 1449 1177 1470">■ A</p>  </div> <div data-bbox="1144 1533 1307 1575"> <p data-bbox="1144 1543 1177 1564">■ B</p>  </div> </div> <p data-bbox="1291 1600 1377 1617">JSKIA0055ZZ</p>
 <p data-bbox="402 1852 490 1869">JSKIA0052ZZ</p>	MIG seam weld / Point weld	 <p data-bbox="1291 1852 1377 1869">JSKIA0056ZZ</p>

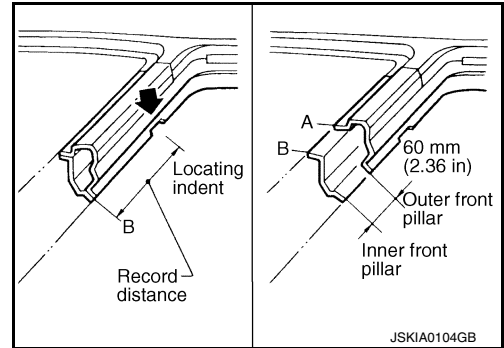
# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >

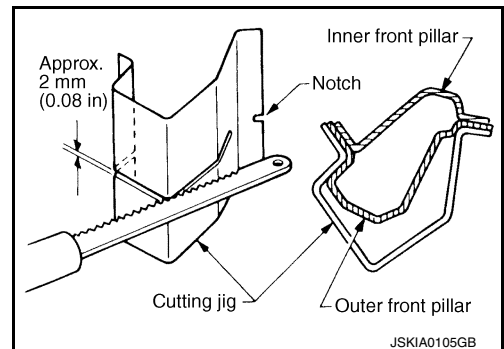
- Front pillar butt joint can be determined anywhere within shaded area as shown in the figure. The best location for the butt joint is at position A due to the construction of the vehicle. Refer to the front pillar section.



- 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.

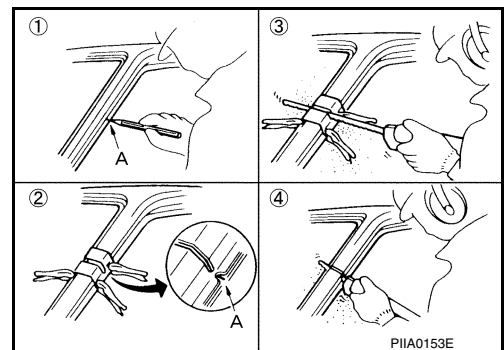


- Prepare a cutting jig to make outer pillar easier to cut. Also, this will permit service part to be accurately cut at joint position.



- 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.



## Hoodledge

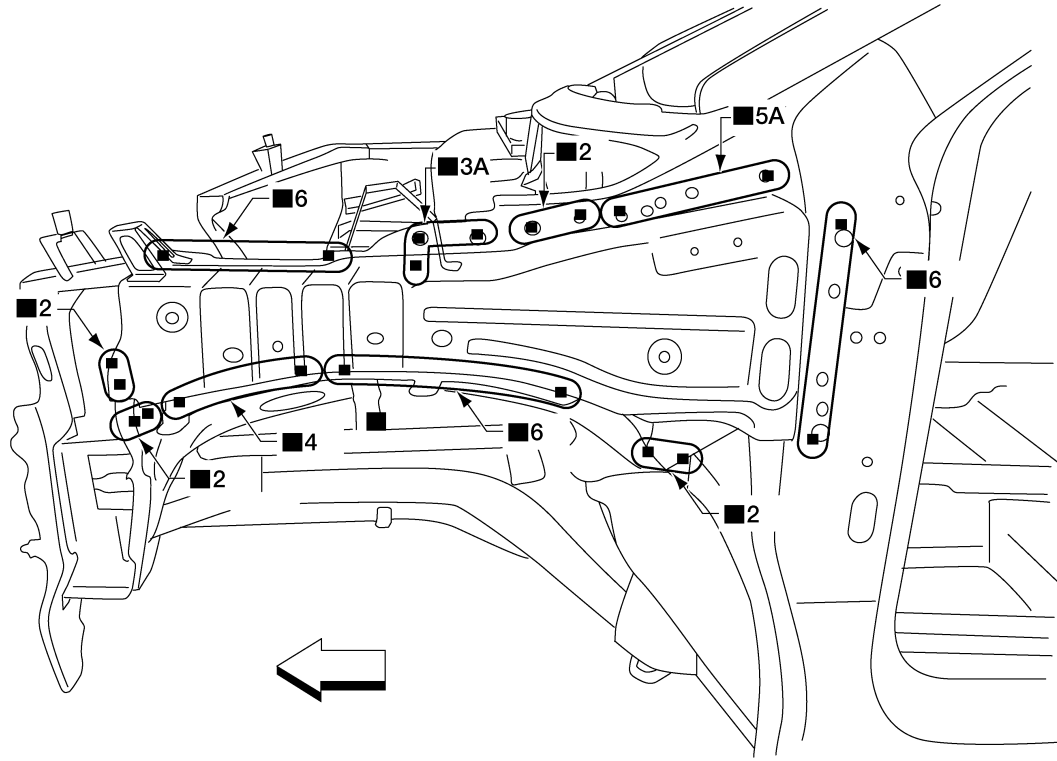
INFOID:000000012424338

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# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



ALKIA3272ZZ

Replacement parts

- Upper hoodledge (LH)

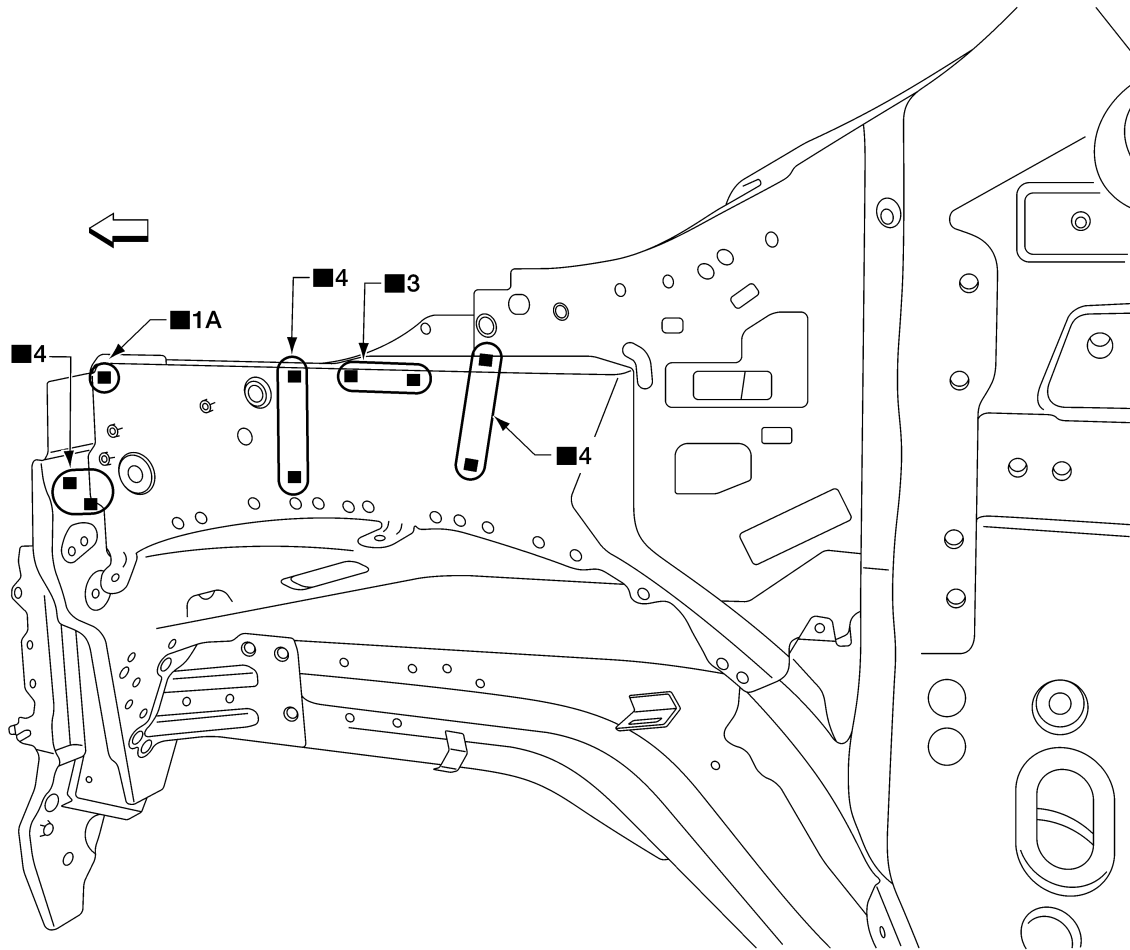
⇐ Front

## Hoodledge Reinforcement

INFOID:000000012424339

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



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Replacement parts

- LH Hoodledge reinforcement

⇐ Front

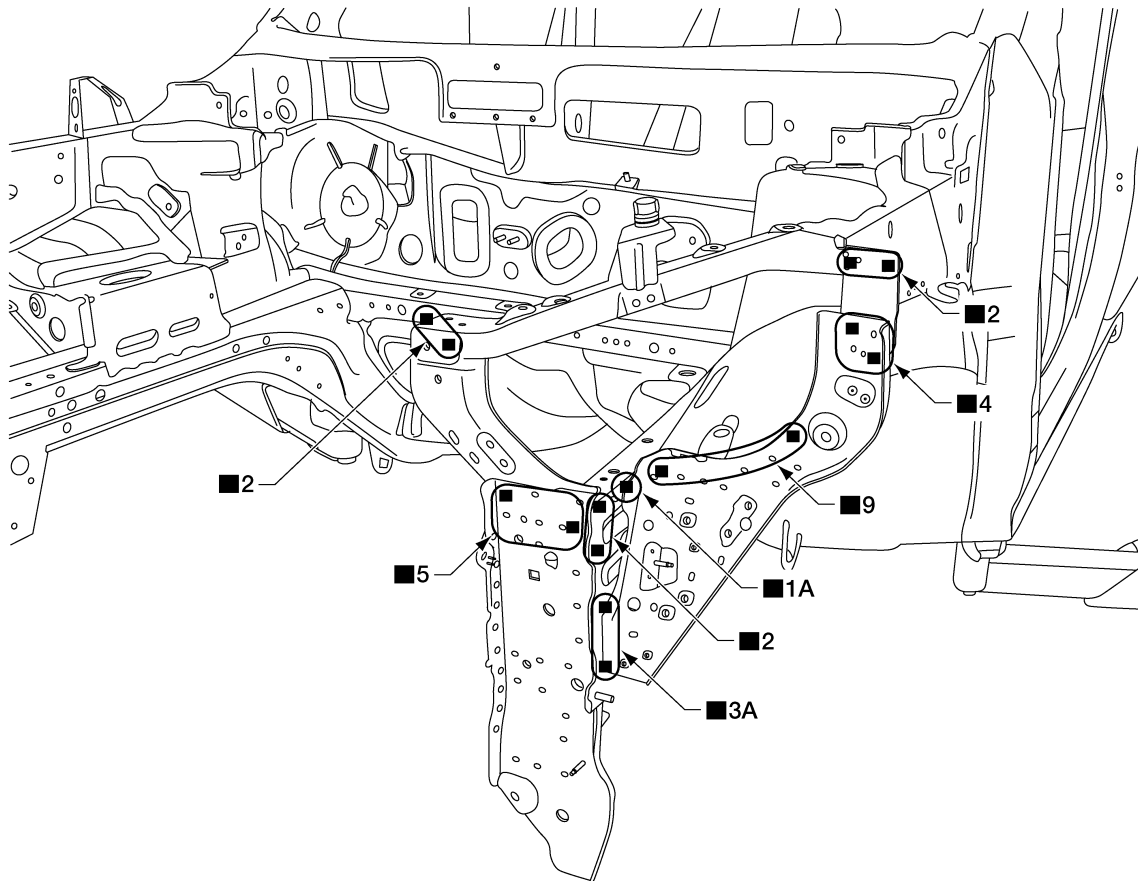
ALKIA3278ZZ

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

## Radiator Core Support Side

INFOID:000000012424340



AWKIA2826ZZ

### Replacement parts

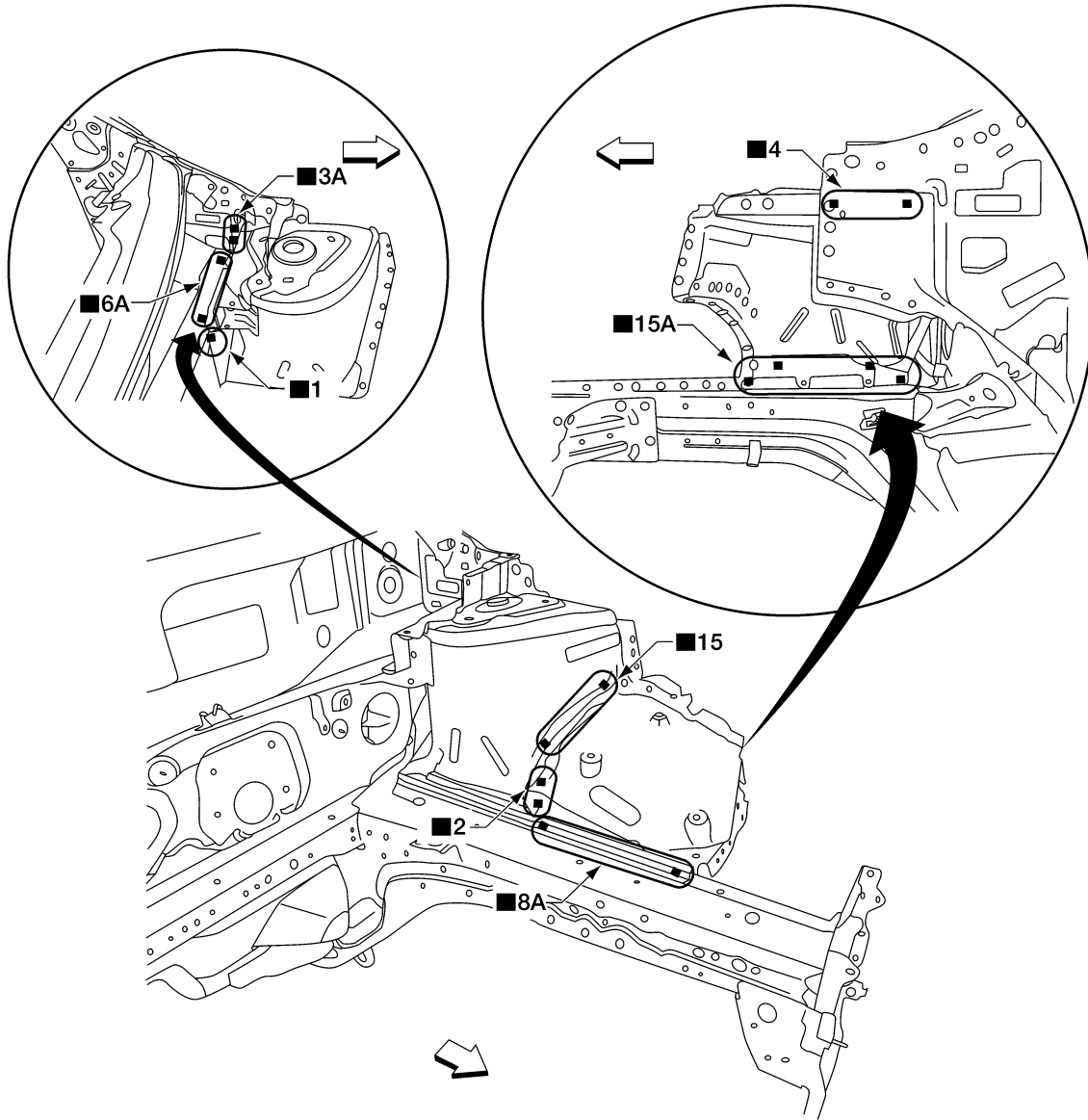
- Radiator core support side

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

## Strut Housing

INFOID:000000012424341



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Replacement parts

● Strut housing

● Strut housing extension

← Front

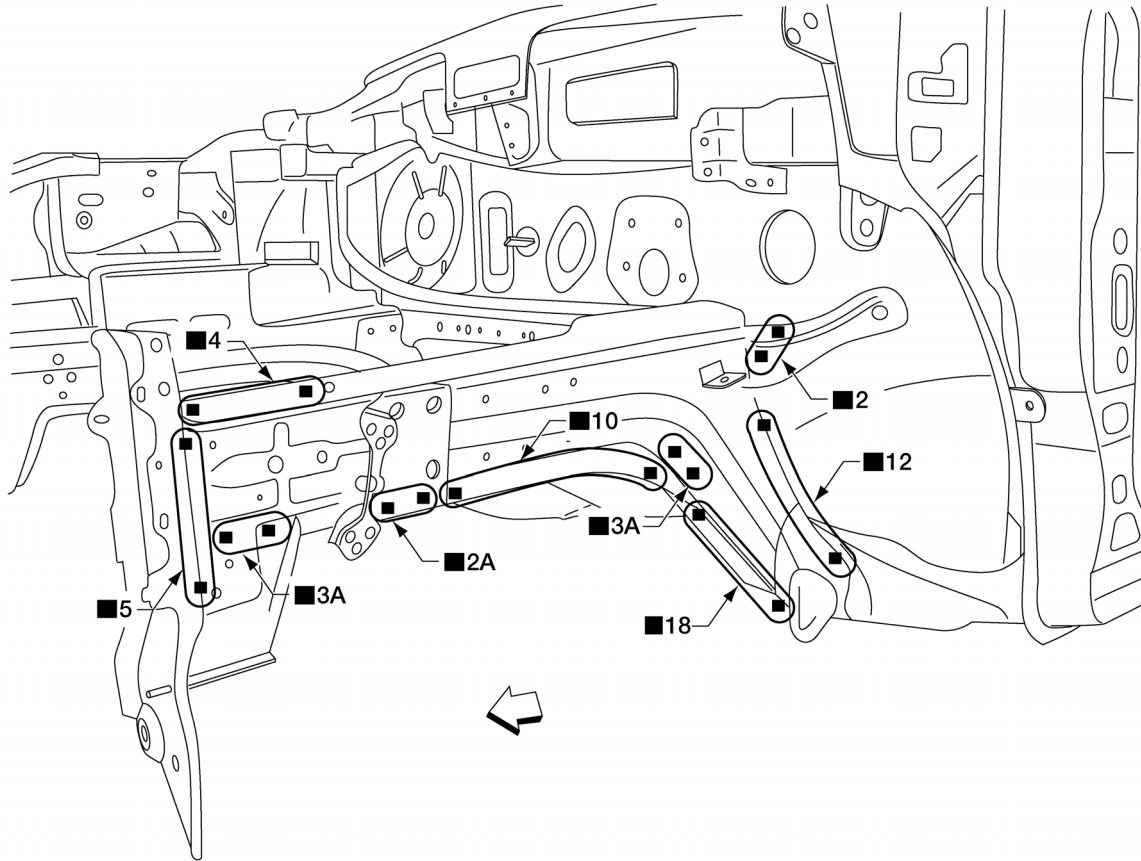
## Front Side Member Outer

INFOID:000000012424342

Work after hoodledge has been removed.

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



ALKIA3308ZZ

Replacement parts

- Front side member closing plate assembly (LH) ⇐Front

## Front Side Member Inner

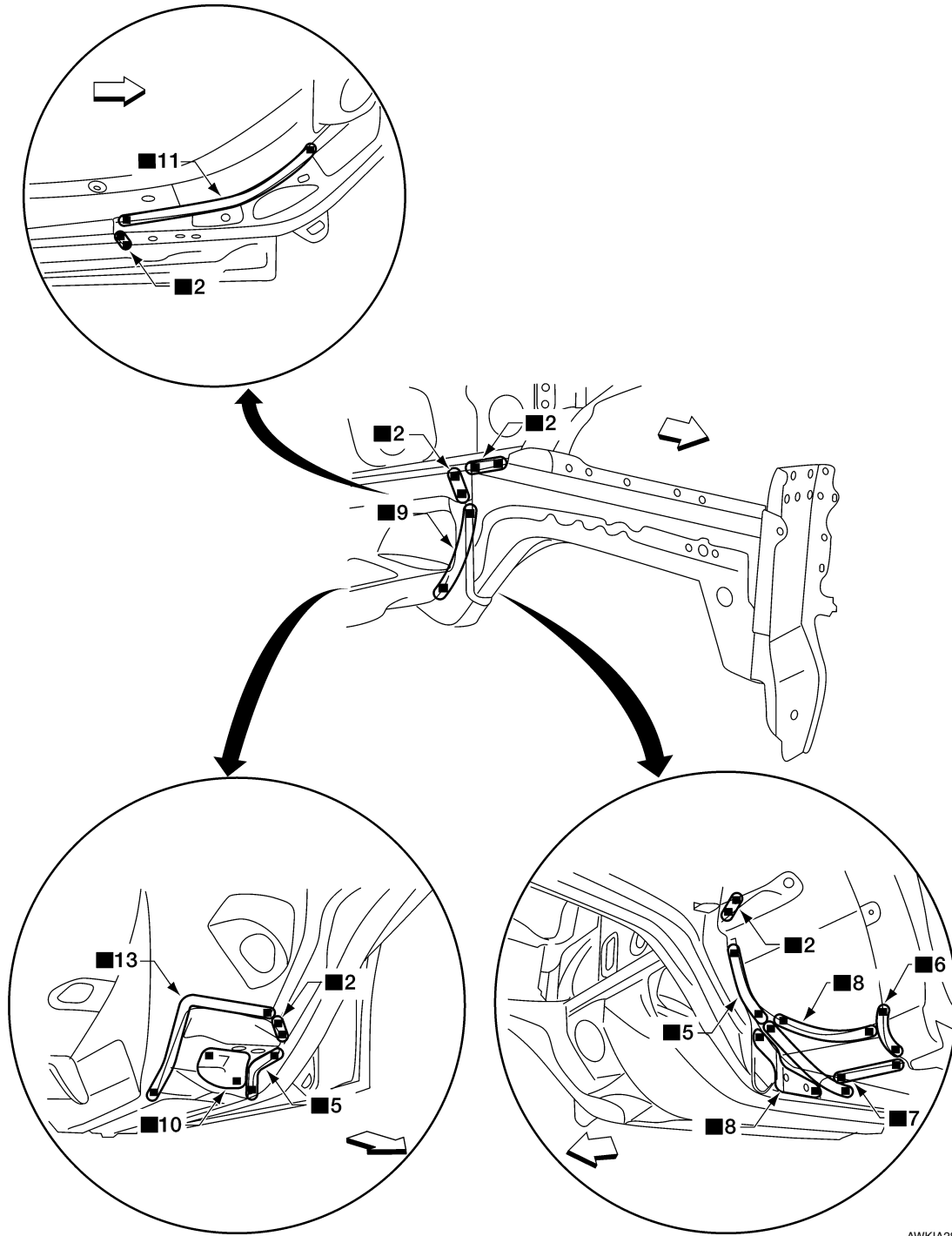
INFOID:000000012424343

Work after hoodledge and strut housing has been removed.



# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



AWKIA2856ZZ

Replacement parts

- Front side member inner assembly (LH)

⇐Front

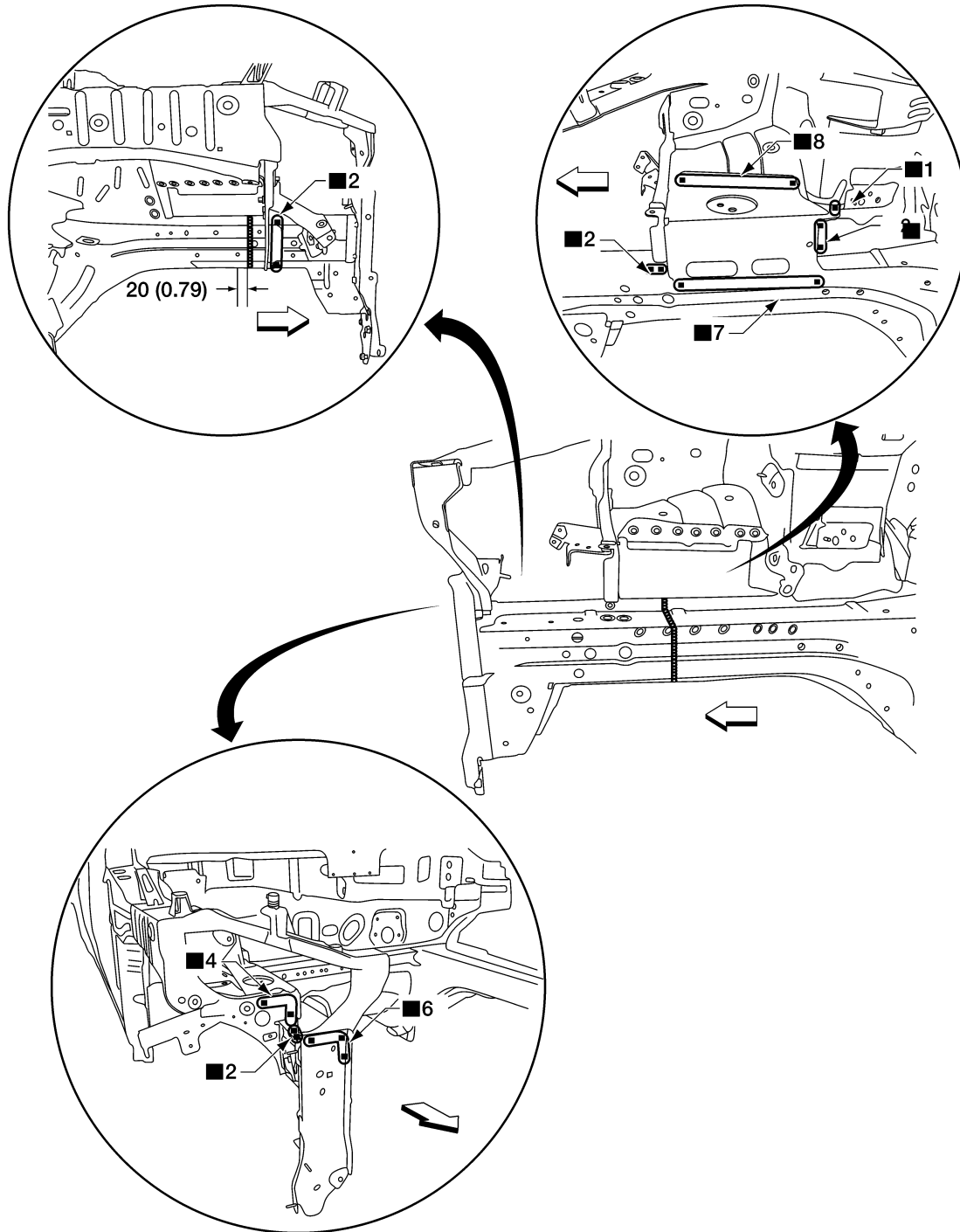
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# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

## Front Side Member (Partial Replacement)

INFOID:000000012424344



AWKIA2858ZZ

Unit: mm (in)

Replacement parts

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

⇐ Front

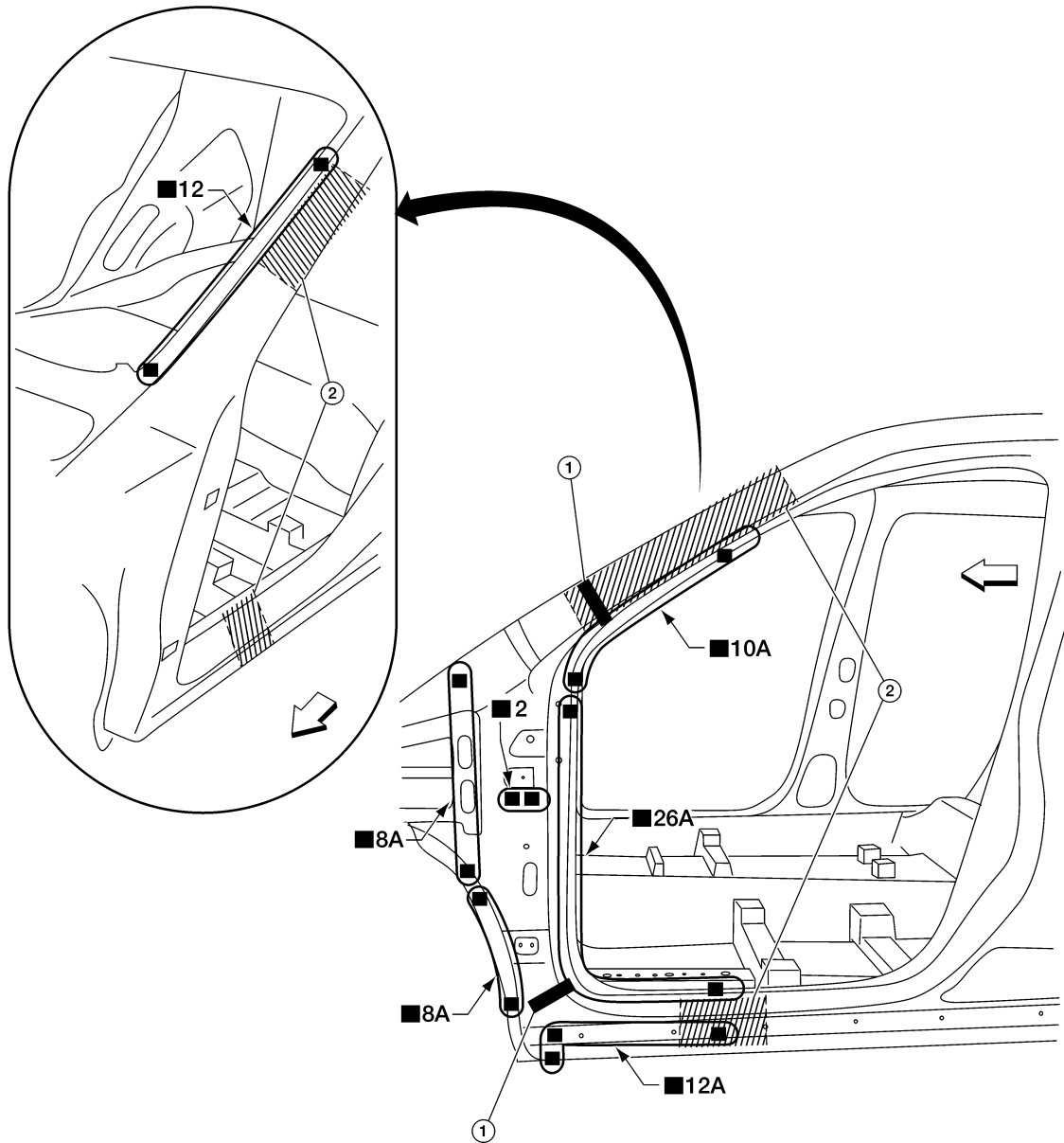
## Front Pillar

INFOID:000000012424345

Work after hoodledge reinforcement has been removed.

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



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Replacement parts

- Front side body (LH)

1. Urethane foam

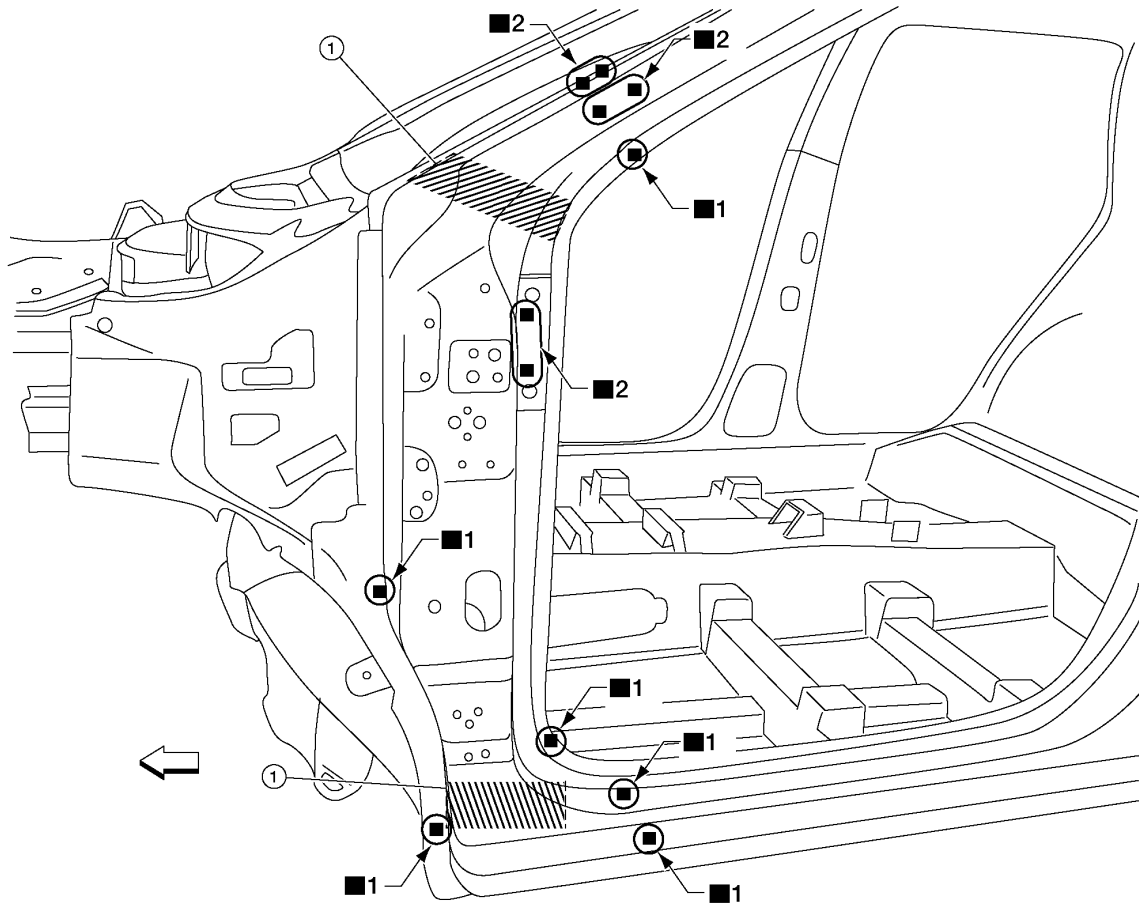
2. Sectioning location

↔ Front

View B: Before installing outer front side body

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



ALKIA3314ZZ

Replacement parts

- Inner front pillar reinforcement
- 1. Urethane foam

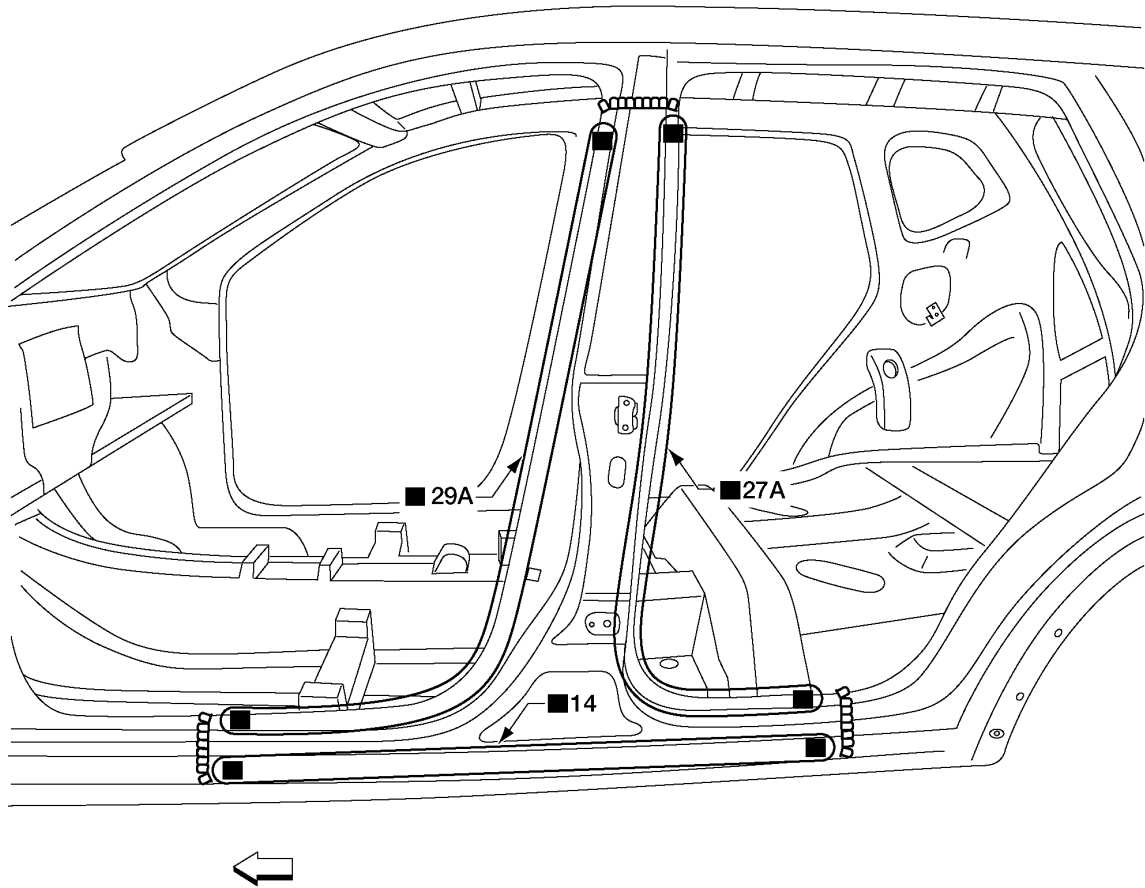
⇐ Front

## Center Pillar

INFOID:000000012424346

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



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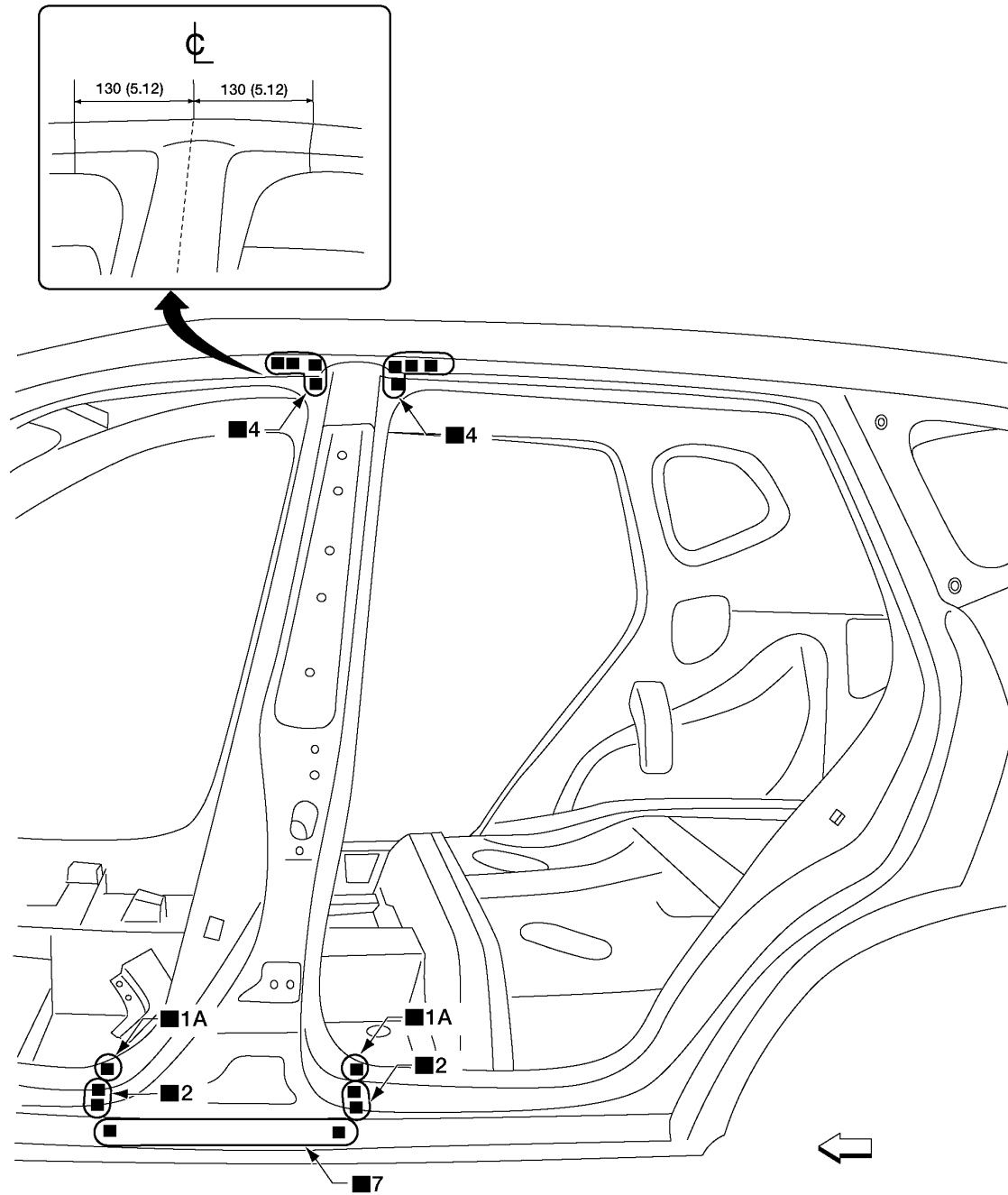
Replacement part

- Outer center pillar

⇐ Front

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



ALKIA3316ZZ

Unit: mm (in)

Replacement part

- Center pillar reinforcement

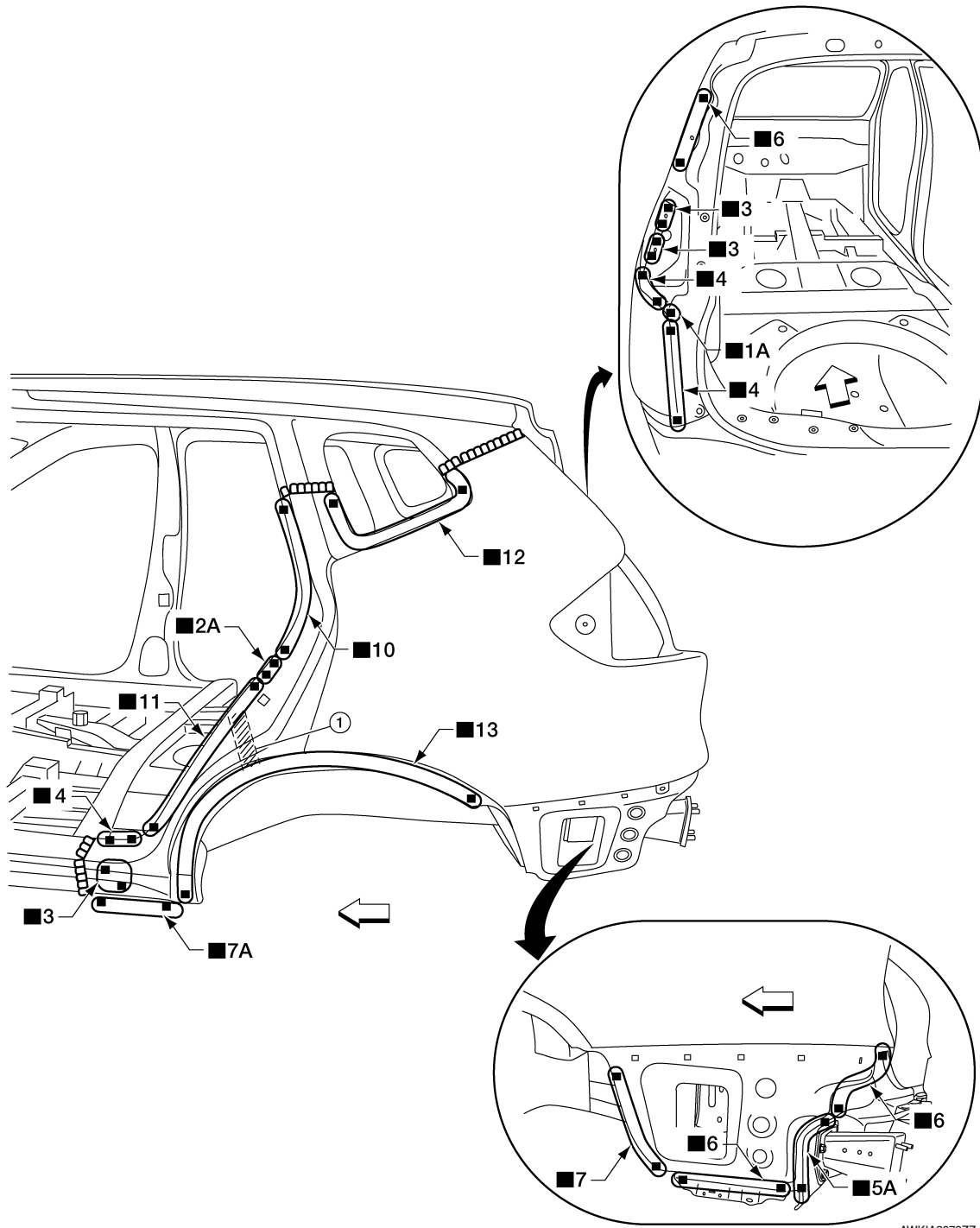
↔ Front

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

## Rear Fender

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Replacement parts

- Rear fender assembly (LH)

1. Urethane foam

← Front

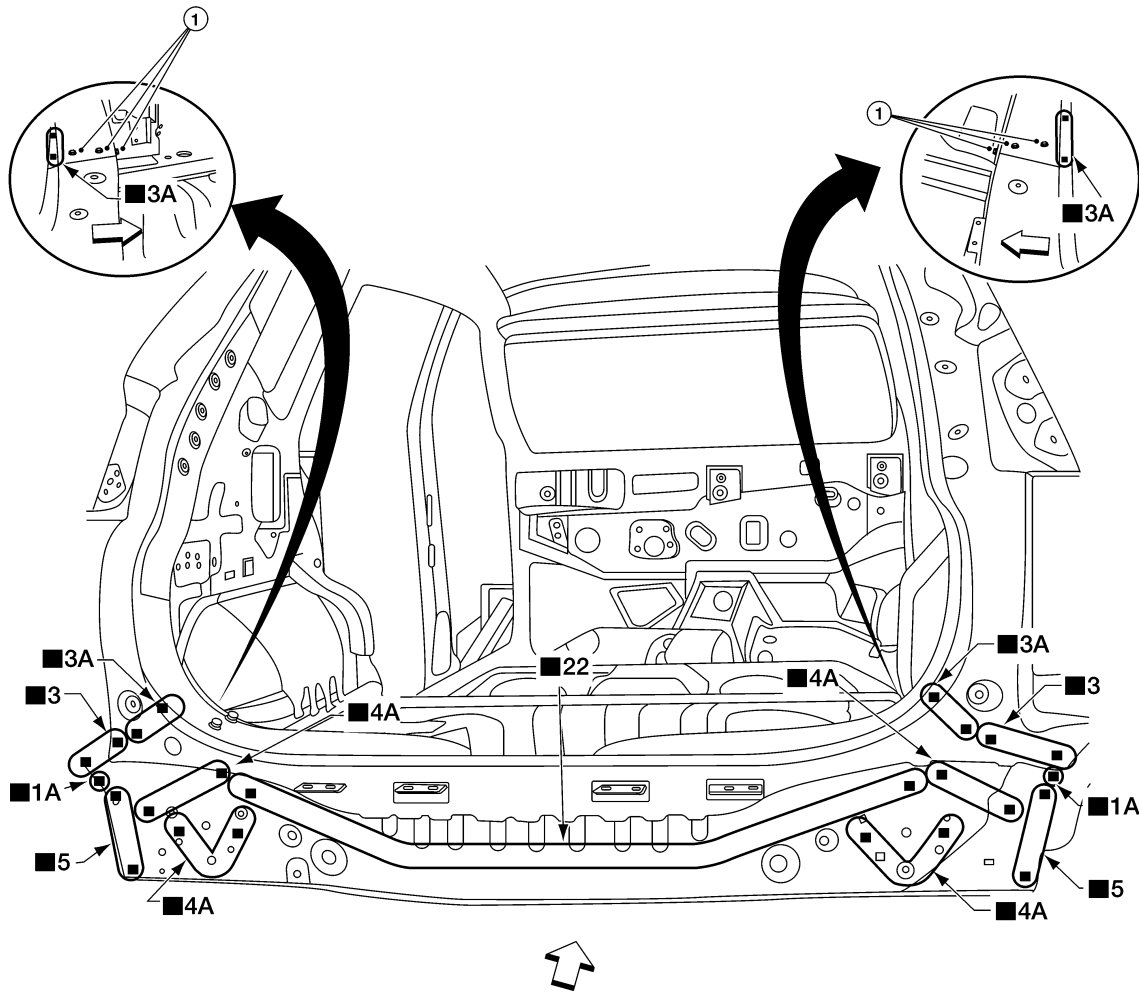
AWKIA2873ZZ

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

## Rear Panel

INFOID:000000012424348



ALKIA2861ZZ

### Replacement parts

- Rear panel assembly

1. Bolt

← Front

## Rear Floor Rear

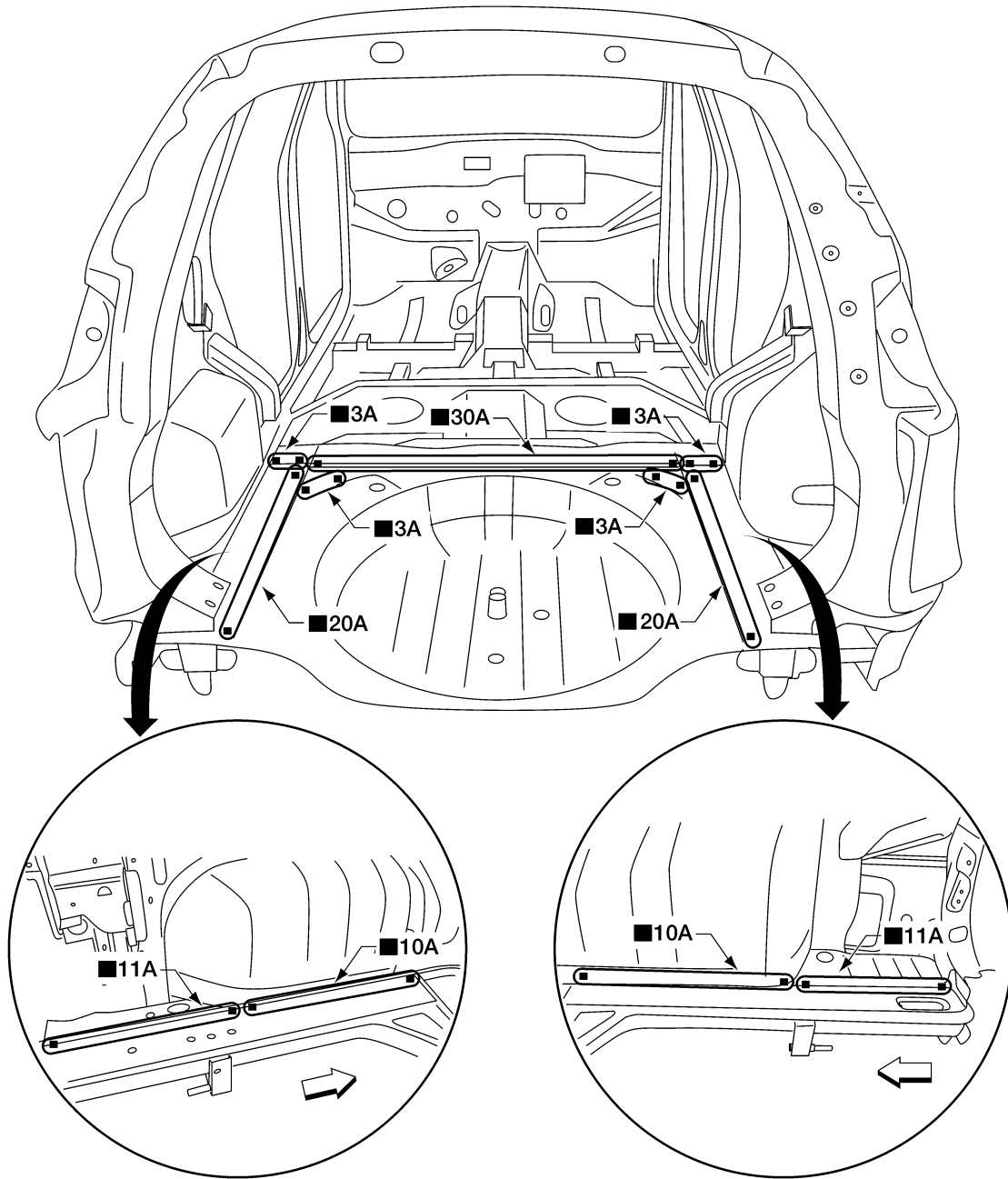
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Work after rear panel has been removed.



# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



AWKIA2865ZZ

Replacement parts

● Rear floor rear

● Rear floor rear side

← Front

## Rear Side Member Extension

INFOID:000000012424350

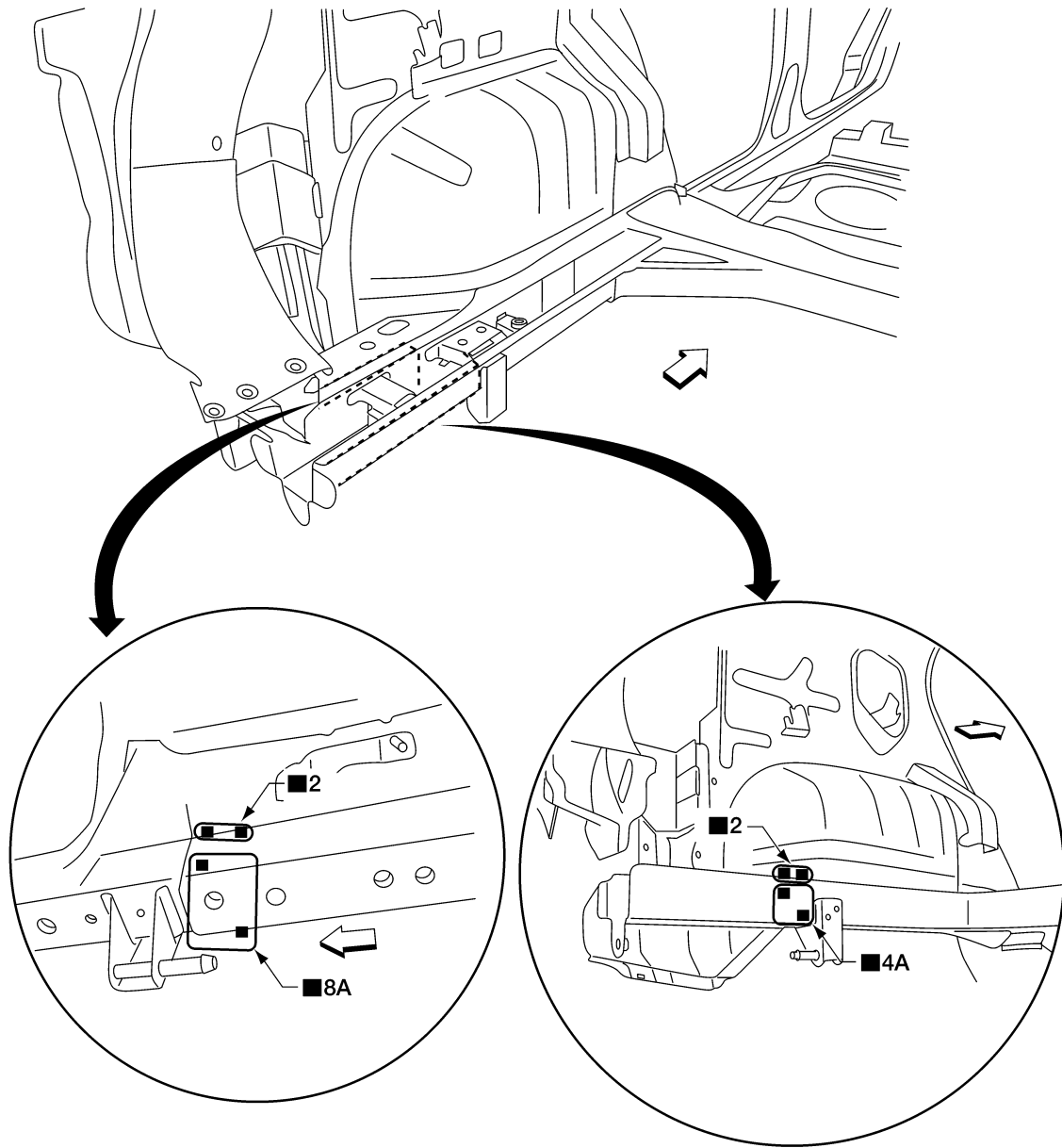
Work after rear panel has been removed.

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# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >



AWKIA2866ZZ

### Replacement parts

- Rear side member extension (LH) ← Front

# BODY ALIGNMENT

< SERVICE DATA AND SPECIFICATIONS (SDS)

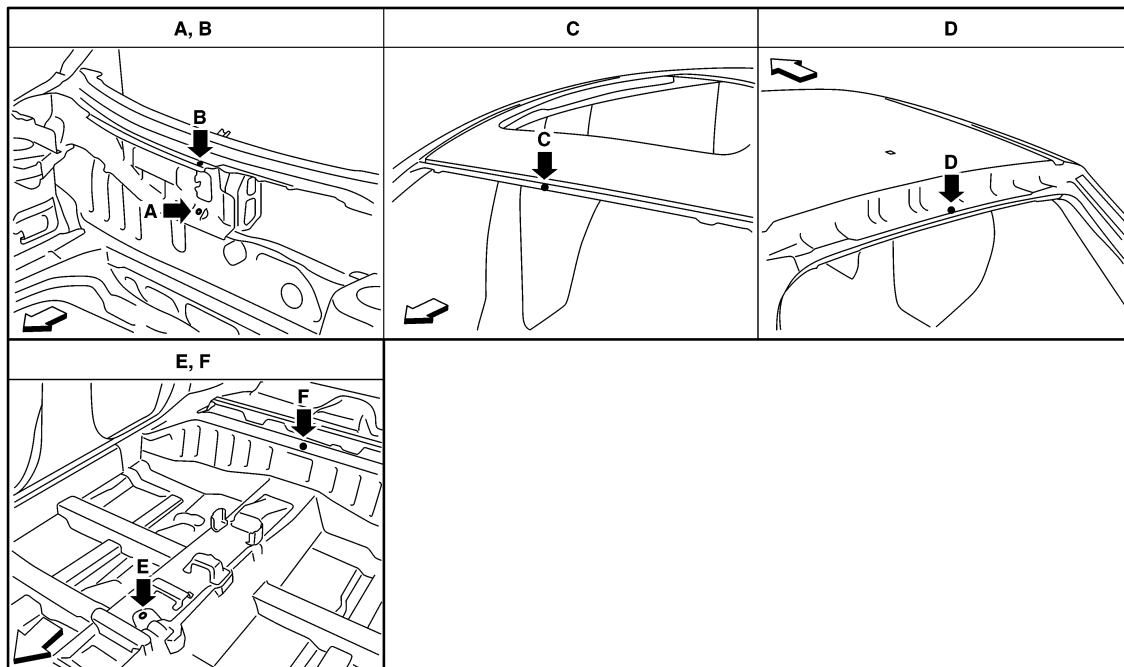
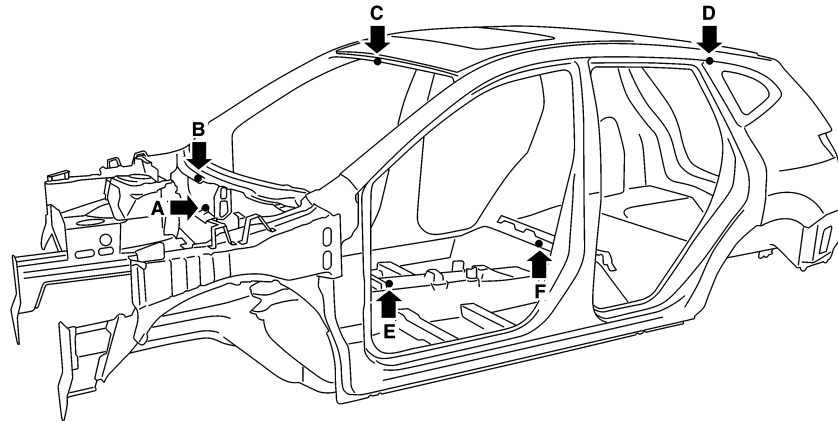
## SERVICE DATA AND SPECIFICATIONS (SDS)

### BODY ALIGNMENT

#### Body Center Marks

INFOID:000000012424351

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.



AWKIA2867ZZ

← 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

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# BODY ALIGNMENT

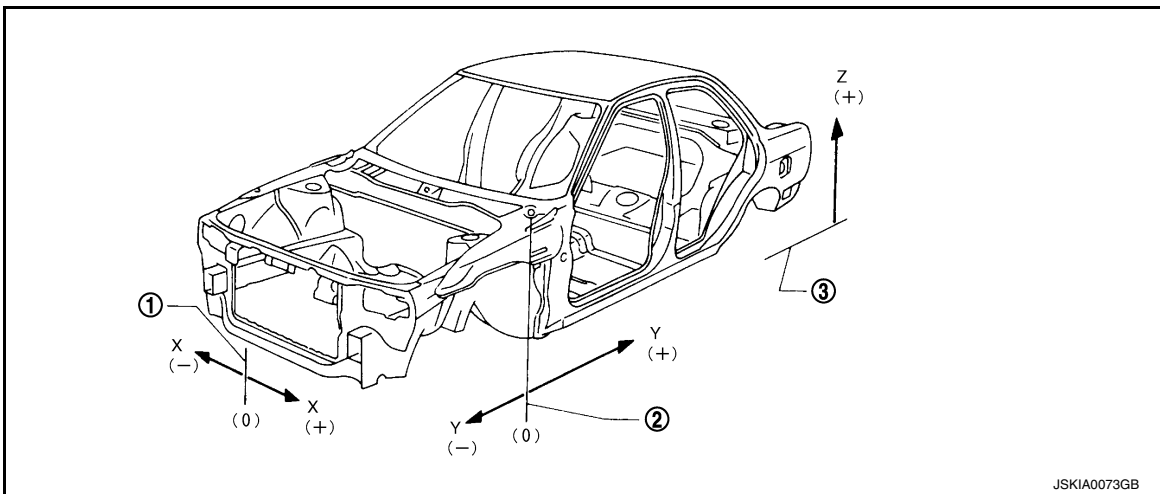
## < SERVICE DATA AND SPECIFICATIONS (SDS)

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

### Description

INFOID:000000012424352

- 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

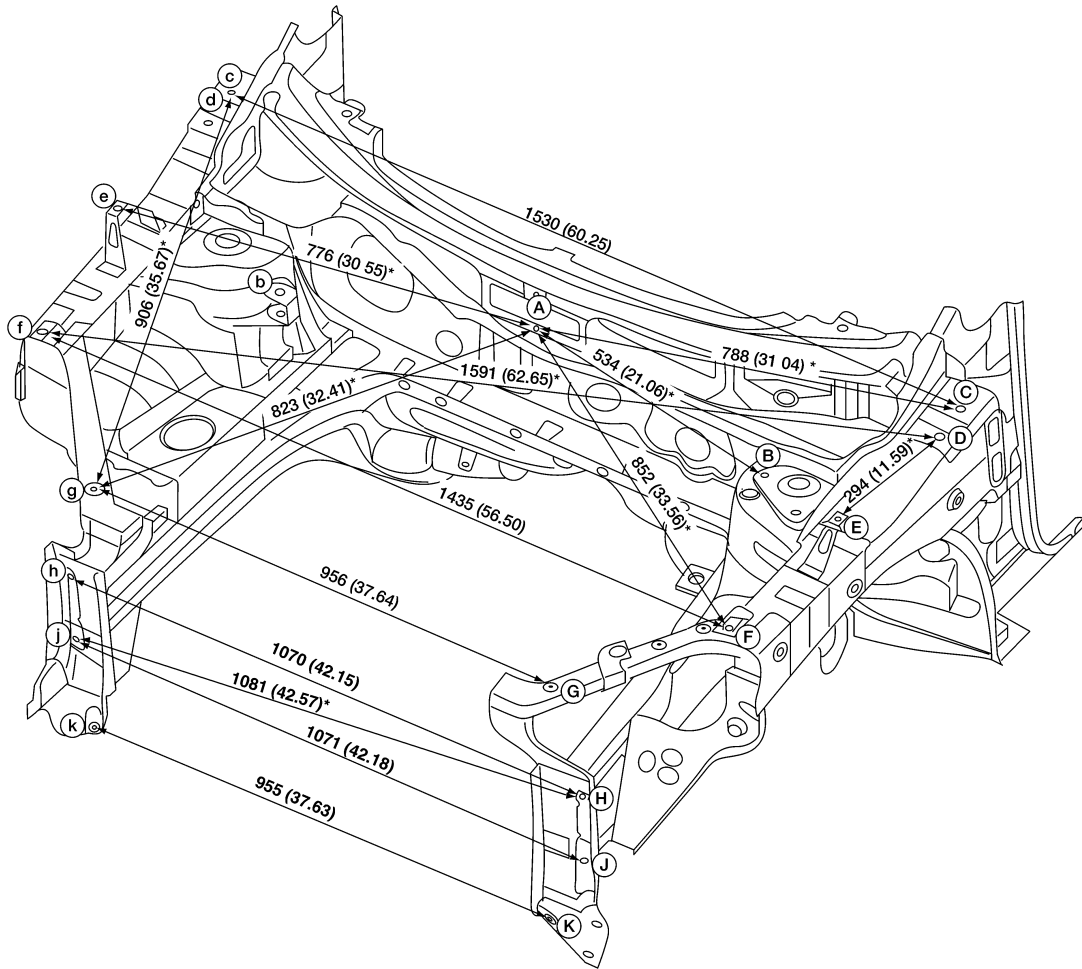
INFOID:000000012424353

### MEASUREMENT

# BODY ALIGNMENT

## < SERVICE DATA AND SPECIFICATIONS (SDS)

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



ALKIA3291ZZ

«The others»

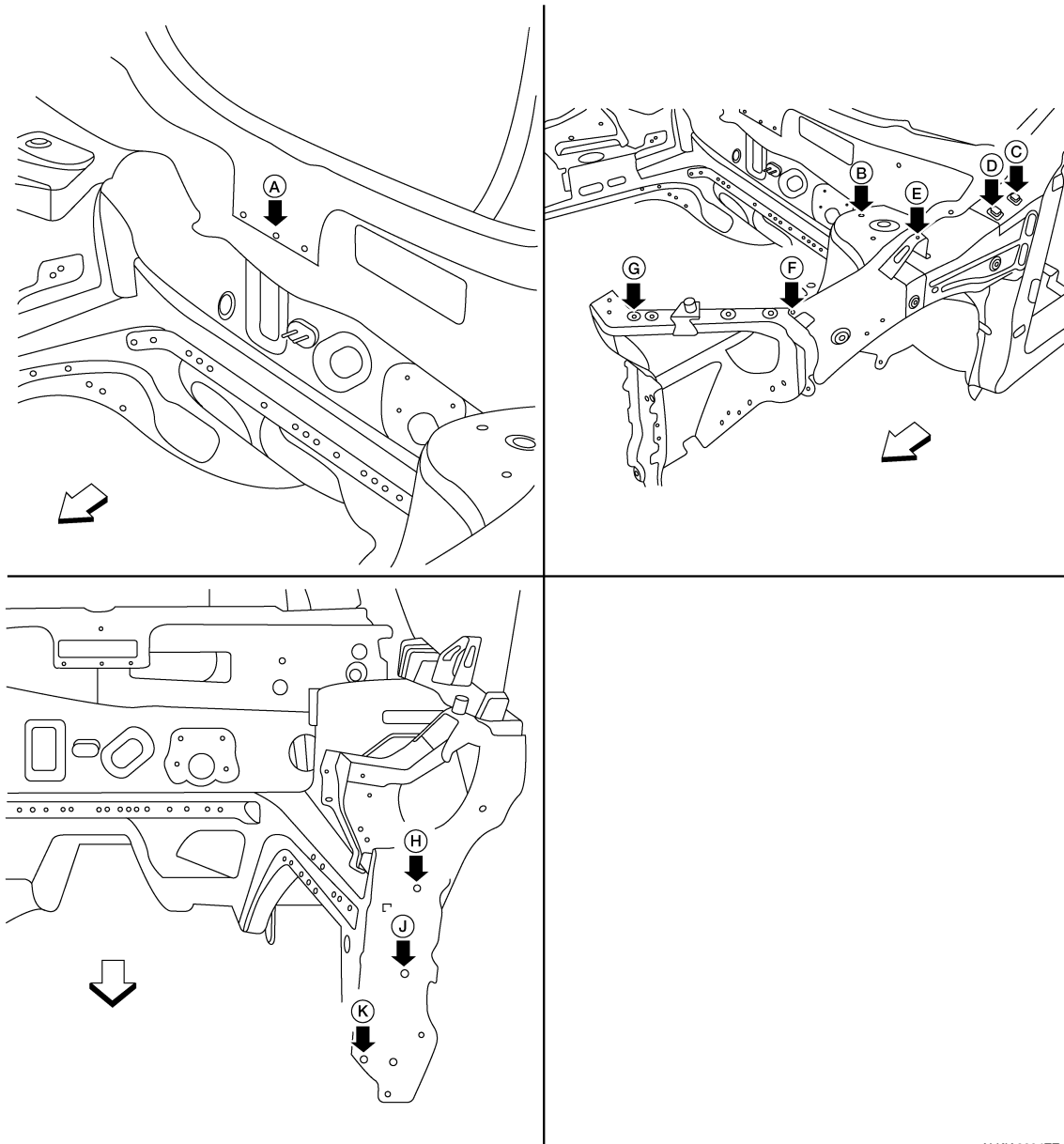
Unit: mm (in)

Point	Dimension	Point	Dimension	Point	Dimension
A - D	774 (30.49)*	B - F	432 (17.04)*	C - G	906 (35.67)*
A - E	776 (30.49)*	B - f	1305 (51.41)*	C - g	1511 (59.50)*
A - G	832 (32.41)*	B - G	596 (23.48)*	D - g	1472 (57.98)*
B - b	1057 (41.64)	B - g	1189 (46.83)*	F - f	1435 (56.50)*
B - C	357 (14.06)*	C - D	70.0 (2.76)*	F - g	1216 (47.91)*
B - c	1321 (52.02)*	C - e	1520 (59.84)*	E - e	1509 (59.43)
B - D	308 (12.13)*	C - E	361 (14.22)*	E - f	1500 (59.07)*
B - d	1309 (51.54)*	C - e	1562 (61.50)*	G - e	1334 (52.54)*
B - E	263 (10.37)*	C - F	648 (25.53)*	H - J	152 (6.01)*
B - e	1290 (50.81)*	C - f	1617 (63.68)*	H - k	1081 (42.59)*

# BODY ALIGNMENT

< SERVICE DATA AND SPECIFICATIONS (SDS)

## MEASUREMENT POINTS



ALKIA3294ZZ

↩ Front

Unit: mm (in)

Point	Material	Point	Material
A	Cowl top extension hole center of center positioning mark $\phi 8$ (0.31)	G, g	Hole for headlight bracket $\phi 7$ (0.28)
B, b	Front strut installing hole center $16 \times 10$ (0.63 $\times$ 0.39)	H, h	Front side member hole center front bumper $\phi 11$ (0.43)
C, c D, d	Hood hinge installing hole center $\phi 12$ (0.47)	J, j	Front side member hole center front bumper $\phi 13$ (0.51)
E, e, F, f	Upper front fender bracket hole center $\phi 7$ (0.28)	K, k	Radiator lower bracket hole $\phi 11$ (0.43)

## Underbody

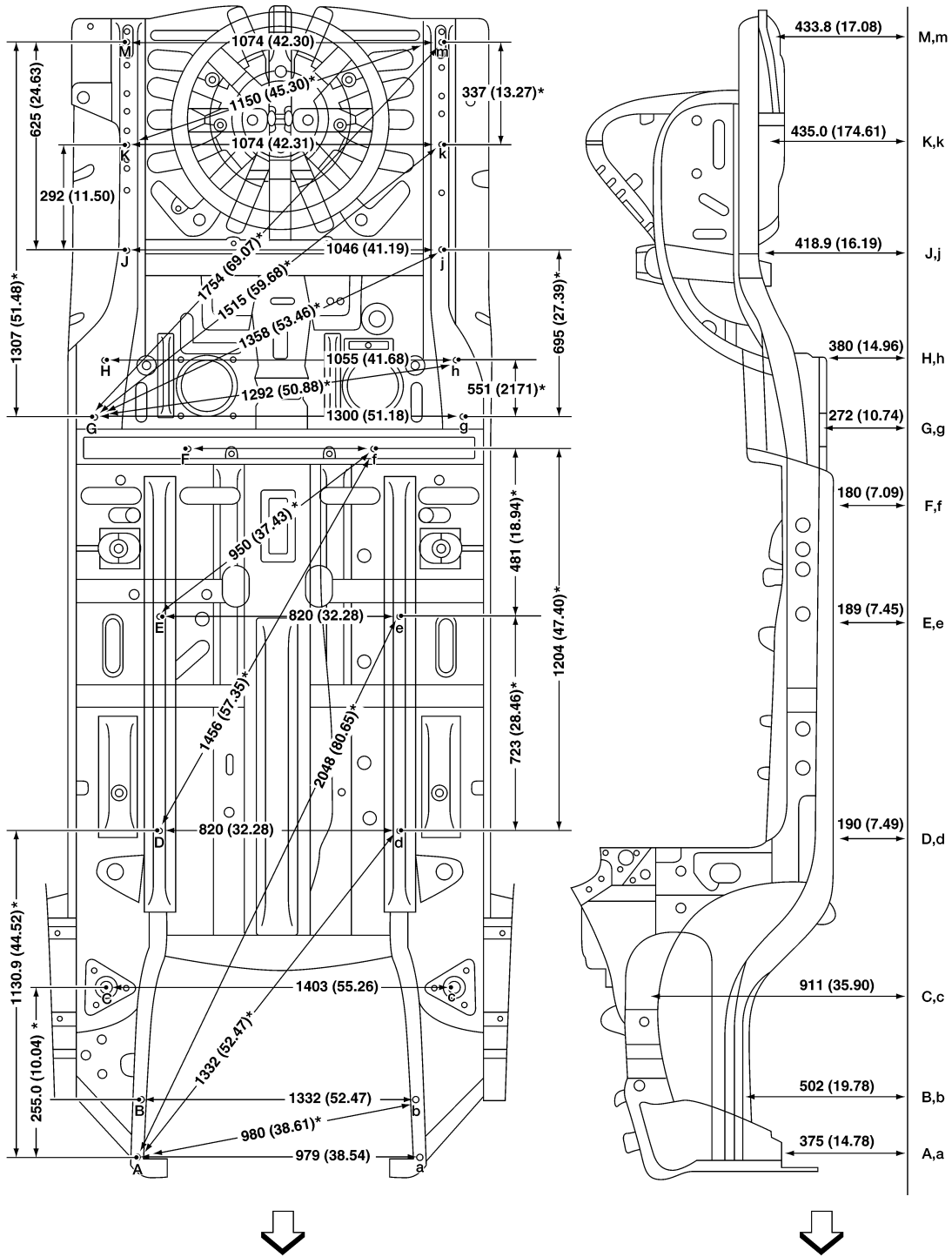
INFOID:000000012424354

## MEASUREMENT

# BODY ALIGNMENT

## < SERVICE DATA AND SPECIFICATIONS (SDS)

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



← Front

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# BODY ALIGNMENT

## < SERVICE DATA AND SPECIFICATIONS (SDS)

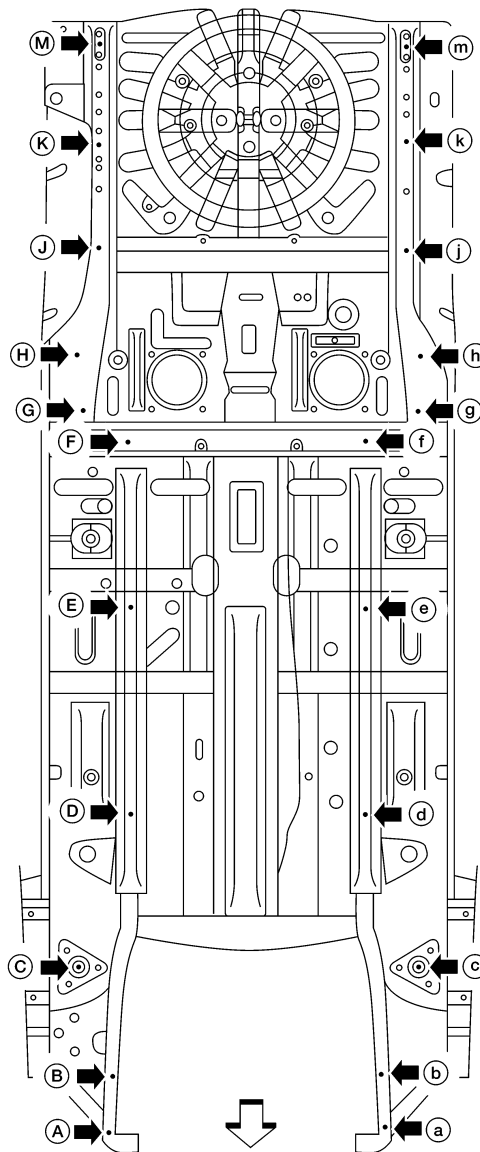
Unit: mm (in)

Point	Dimension	Point	Dimension	Point	Dimension
A - B	255 (10.04)	G - J	1358 (53.46)	J - k	1084 (42.68)
A - E	1847 (72.73)	g - k	975 (38.42)	K - M	337 (13.27)
D - e	1093 (43.04)				

### MEASUREMENT Points

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

### MEASUREMENT POINTS



ALKIA3300ZZ

↩ Front



# BODY ALIGNMENT

## < SERVICE DATA AND SPECIFICATIONS (SDS)

Unit: mm (in)

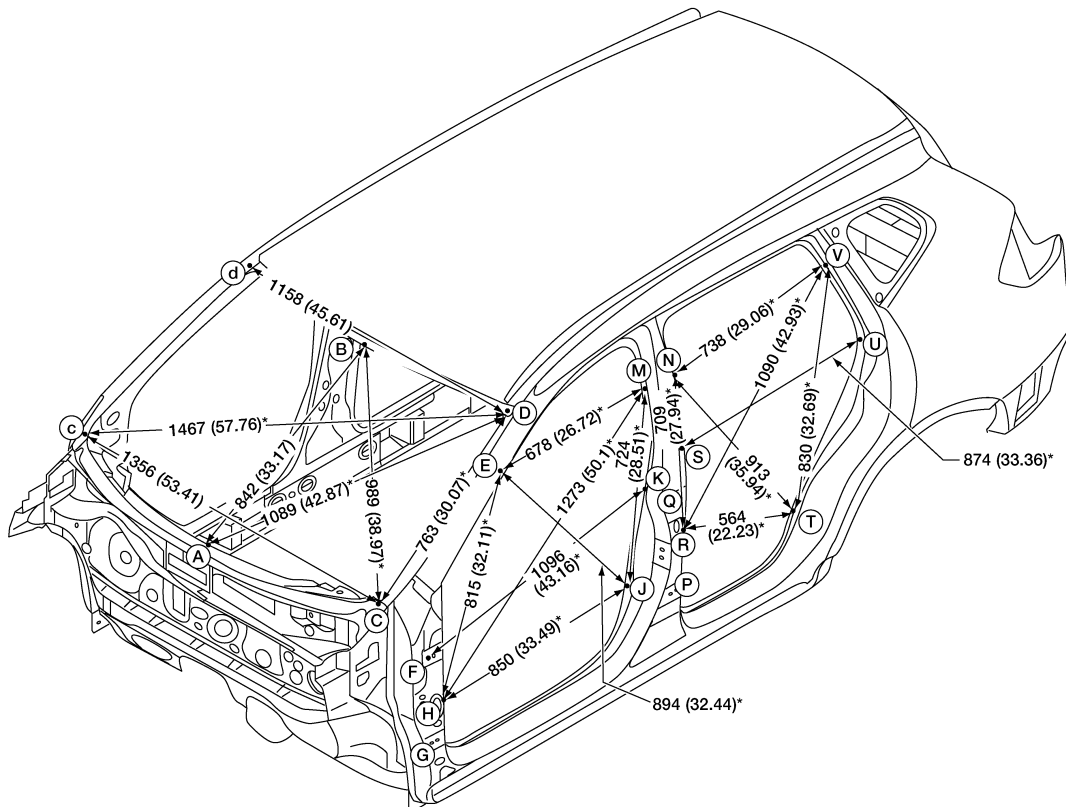
Points	Coordinates			Remarks
	X	Y	Z	
A	-566	-478	375	Hole $\phi$ 18 (0.71)
a	-566	501	375	Hole $\phi$ 18 (0.71)
B	-346	-462	502	Hole $\phi$ 16 (0.63)
b	-372	474	502	Hole $\phi$ 16 (0.63)
C, c	740	$\pm$ 598	911	Hole $\phi$ 33 (1.30)
D, d	547	$\pm$ 410	190	Hole $\phi$ 20x16 (0.79x0.63)
E, e	1270	$\pm$ 410	189	Hole $\phi$ 12 (0.47)
F, f	1751	$\pm$ 410	180	Hole $\phi$ 13 (0.51)
G, g	1954	$\pm$ 650	272	Hole $\phi$ 16 (0.63)
H, h	2480	$\pm$ 525	380	Hole $\phi$ 12 (0.51)
J, j	2622	$\pm$ 523	418	Hole $\phi$ 09 (0.35)
K	2911	-549	435	Hole $\phi$ 09 (0.35)
k	2897	525	435	Hole $\phi$ 09 (0.35)
M	3248	-551	433	Hole $\phi$ 20x14 (0.79x0.55)
m	3248	523	433	Hole $\phi$ 20x14 (0.79x0.55)

### Passenger Compartment

INFOID:000000012424355

### MEASUREMENT

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



AWKIA2814ZZ

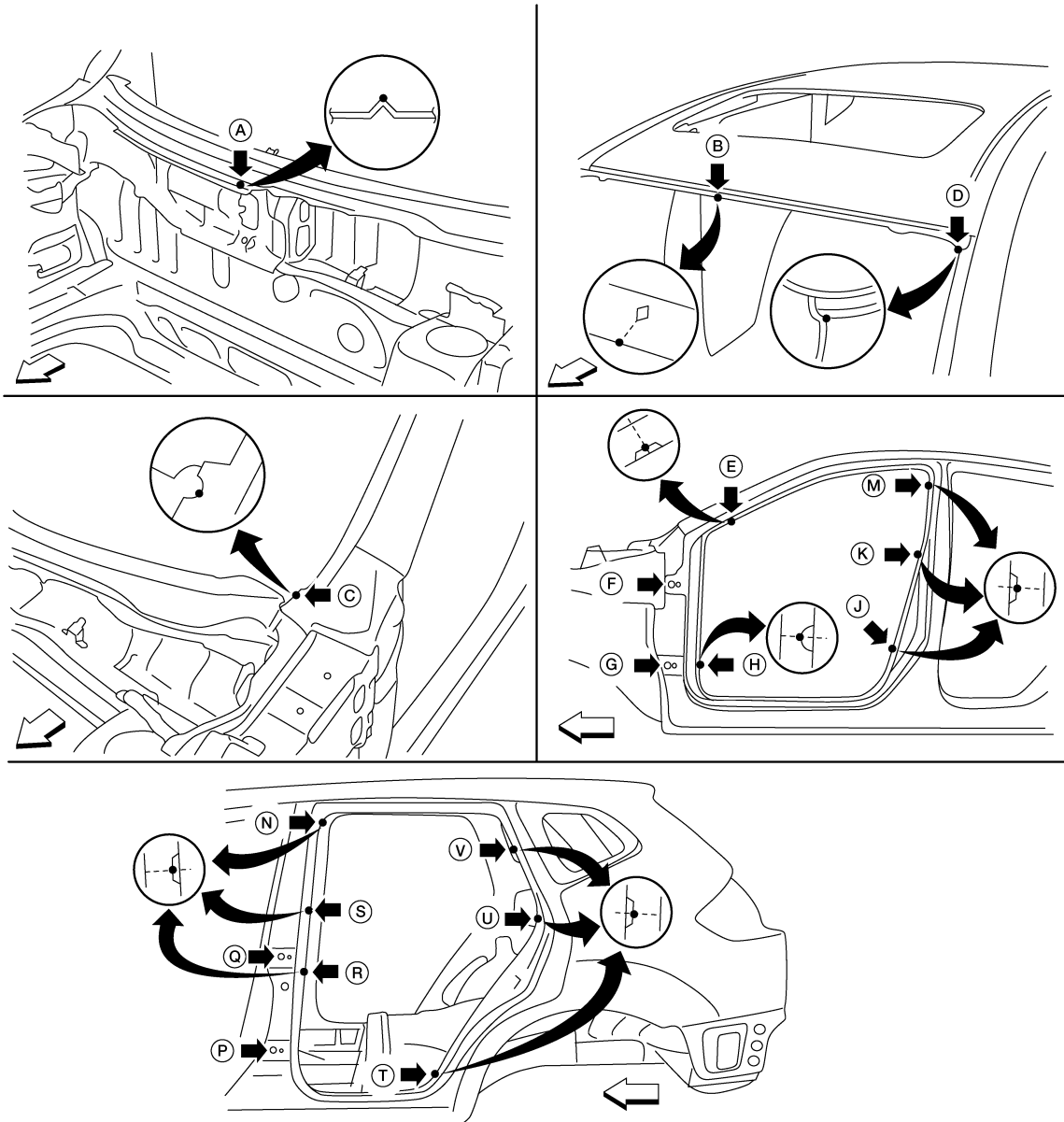
# BODY ALIGNMENT

## < SERVICE DATA AND SPECIFICATIONS (SDS)

Unit: mm (in)

Point	Dimension	Point	Dimension	Point	Dimension	Point	Dimension
A - C	700 (27.56)*	F - Q	1172 (46.15)*	K - M	285 (11.25)*	S - U	847 (33.36)*
B - D	582 (22.94)*	G - P	1137 (44.77)*	M - F	1229 (48.40)*	U - N	863 (33.99)*
E - J	849 (33.44)*	G - Q	1235 (48.63)*	N - S	281 (11.08)*	U - V	297 (11.70)*
E - K	669 (26.37)*	J - E	849 (33.44)*	N - U	863 (33.99)*	V - S	820 (32.30)*
E - M	678 (26.72)	J - F	850 (33.46)*	S - N	281 (11.08)*	V - N	738 (29.06)*
F - P	1175 (46.28)*	K - J	443 (17.44)*	S - T	712 (28.06)*		

## MEASUREMENT POINTS



ALKIA3285ZZ

↶ Front

# BODY ALIGNMENT

## < SERVICE DATA AND SPECIFICATIONS (SDS)

Unit: mm (in)

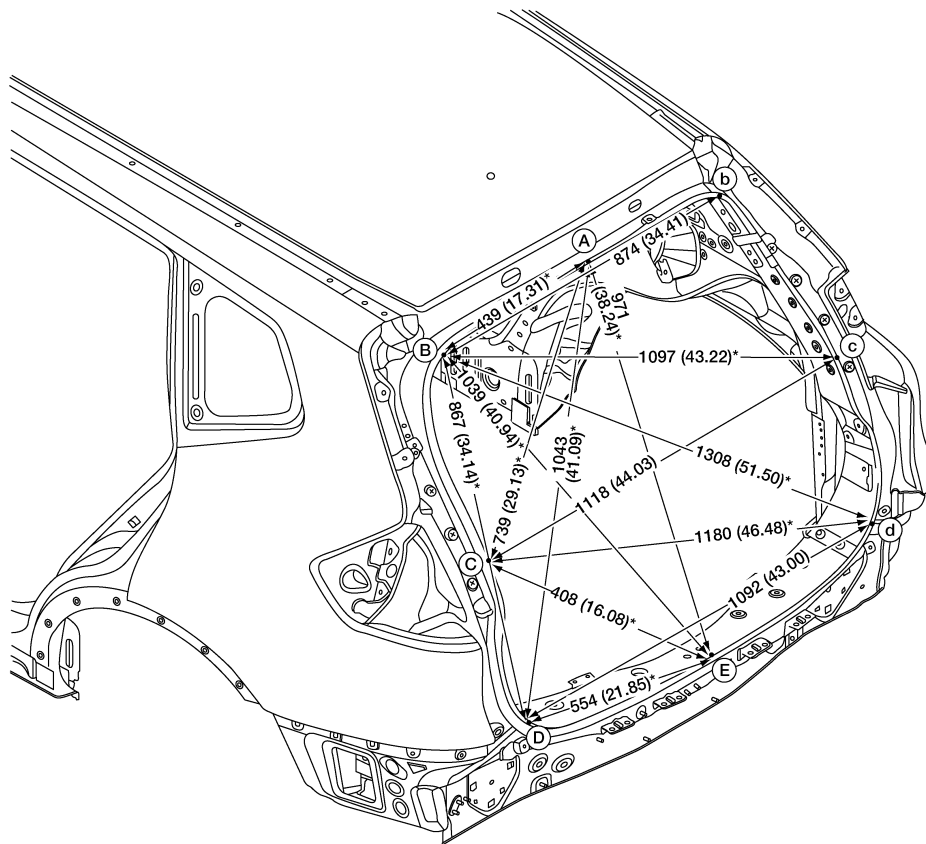
Point	Material	Point	Material
A	Center cowl top positioning mark of center positioning mark	J, j, K, k, M, m, N, n, S, s, R, r	Center pillar indent
B	Roof flange end of center positioning mark	T, t U, u V, v	Rear fender indent
C, c	Front pillar joggle	F, f, G, g, Q, q, P, P	Door hinge installing hole center φ12 (0.47) W, w: φ9 (0.35)
E, e, H, h, G, g	Front pillar indent		

### Rear Body

INFOID:000000012424356

### MEASUREMENT

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



AWKIA2815ZZ

Unit: mm (in)

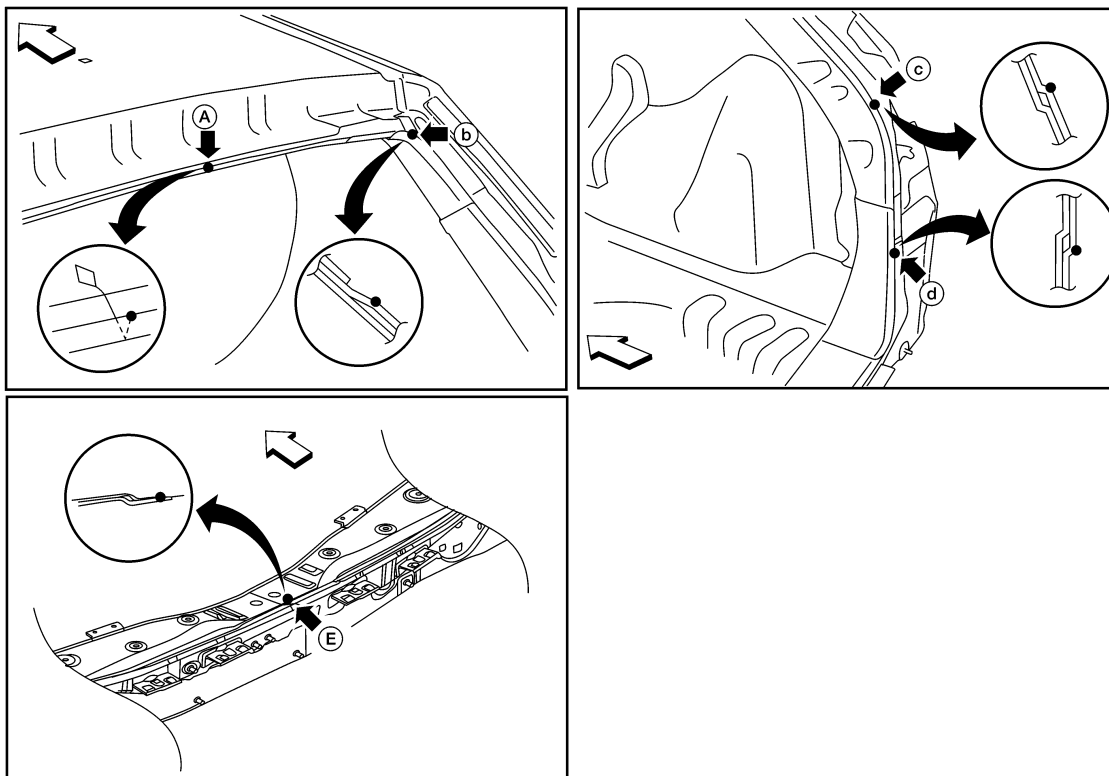
### MEASUREMENT POINTS

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# BODY ALIGNMENT

< SERVICE DATA AND SPECIFICATIONS (SDS)



AWKIA2868ZZ

↩ Front

Unit: mm (in)

Point	Material	Point	Material
A	Roof flange end of center positioning mark	C, c, D, d	Rear flange jog corner
B, b	Rear flange jog corner	E	Rear panel upper flange end