SECTION BRM
BODY REPAIR

CONTENTS

VEHICLE INFORMATION

BODY EXTERIOR PAINT COLOR

Body Exterior Paint Color

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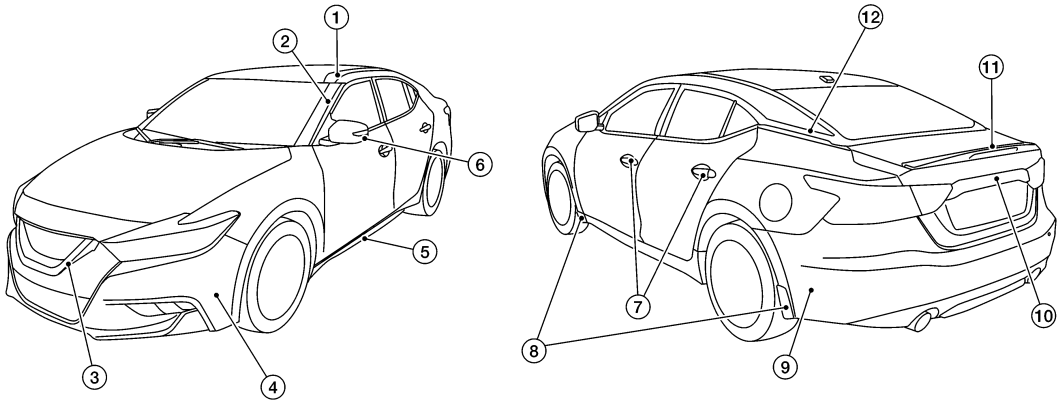

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Component			Color code	CAT	GAB	KH3	K23	KAD	NAW	RBD	RAY	QAB
			Description	Brown	Black	Black	Silver	Gray	Red	Dark-Blue	Blue	White
			Paint type	M	M	M	M	M	M	M	P	P
			Standard clear coat	x	x	x	x	x	x	x	x	x
1.	Roof side molding		Black	—	—	—	—	—	—	—	—	—
2.	Front pillar molding		Black	—	—	—	—	—	—	—	—	—
3.	Front grille		Black	—	—	—	—	—	—	—	—	—
4.	Front bumper fascia		Body color	CAJ	GAB	KH3	K23	KAD	NAW	RBD	RAY	QAB
5.	Center mudguard		Body color	CAJ	GAB	KH3	K23	KAD	NAW	RBD	RAY	QAB
6.	Door mirror		Black	KH3	KH3	KH3	KH3	KH3	KH3	KH3	KH3	KH3
7.	Door outside handle	Grip	Chromium plate	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr
		Escutcheon										
8.	Front and rear mudguard		Body color	CAT	GAB	KH3	K23	KAD	NAW	RBD	RAY	QAB
9.	Rear bumper fascia		Body color	CAT	GAB	KH3	K23	KAD	NAW	RBD	RAY	QAB
10.	License lamp finisher		Chromium plate	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr
11.	Rear spoiler		Body color	CAT	GAB	KH3	K23	KAD	NAW	RBD	RAY	QAB
12.	Rear fender molding		Black	—	—	—	—	—	—	—	—	—

M= Metallic, P= Pearl, Black is solvent based, all others are water based, x= Standard clear coat, Cr= Chrome

PRECAUTION

PRECAUTIONS

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

INFOID:0000000011989567

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.**

HANDLING PRECAUTIONS FOR PLASTICS

Precautions For Plastics

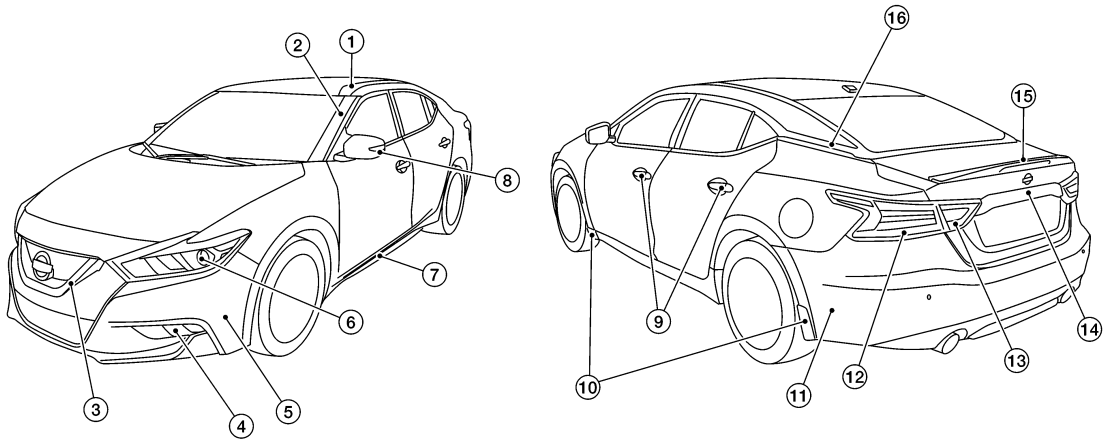
INFOID:0000000011989568

Abbre-viation	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 up quickly).	Flammable
PVC	Poly Vinyl Chloride	80 (176)	Same as above.	Poison gas is emitted when burned.
EPM/ EPDM	Ethylene Propylene (Diene) co-polymer	80 (176)	Same as above.	Flammable
TPO/ TPR	Thermoplastic Olefine/ Thermoplastic rubber	80 (176)	Same as above.	Flammable
PP	Polypropylene	90 (194)	Same as above.	Flammable, avoid bat-tery acid.
UP	Unsaturated Polyester	90 (194)	Same as above.	Flammable
PS	Polystyrene	80 (176)	Avoid solvents.	Flammable
ABS	Acrylonitrile Butadiene Styrene	80 (176)	Avoid gasoline and solvents.	—
PMMA	Poly Methyl Methacrylate	85 (185)	Same as above.	—
EVAC	Ethylene Vinyl Acetate	90 (194)	Same as above.	—
ASA	Acrylonitrile Styrene Acrylate	100 (222)	Same as above.	Flammable
PPE	Poly Phenylene Ether	110 (230)	Same as above.	—
PC	Polycarbonate	120 (248)	Same as above.	—
PAR	Polyarylate	180 (356)	Same as above.	—
PUR	Polyurethane	90 (194)	Same as above.	—
PPC	Polypropylene Composite	115 (239)	Same as above	Flammable
POM	Poly Oxymethylene	120 (248)	Same as above.	Avoid battery acid.
PBT+ PC	Poly Butylene Terephthalate + Polycarbonate	120 (248)	Same as above.	Flammable
PA	Polyamide (Nylon)	140 (284)	Same as above.	Avoid immersing in wa-ter.
PBT	Poly Butylene Terephthalate	140 (284)	Same as above.	—
PET	Polyester	180 (356)	Same as above.	—
PEI	Polyetherimide	200 (392)	Same as above.	—

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.**

LOCATION OF PLASTIC PARTS



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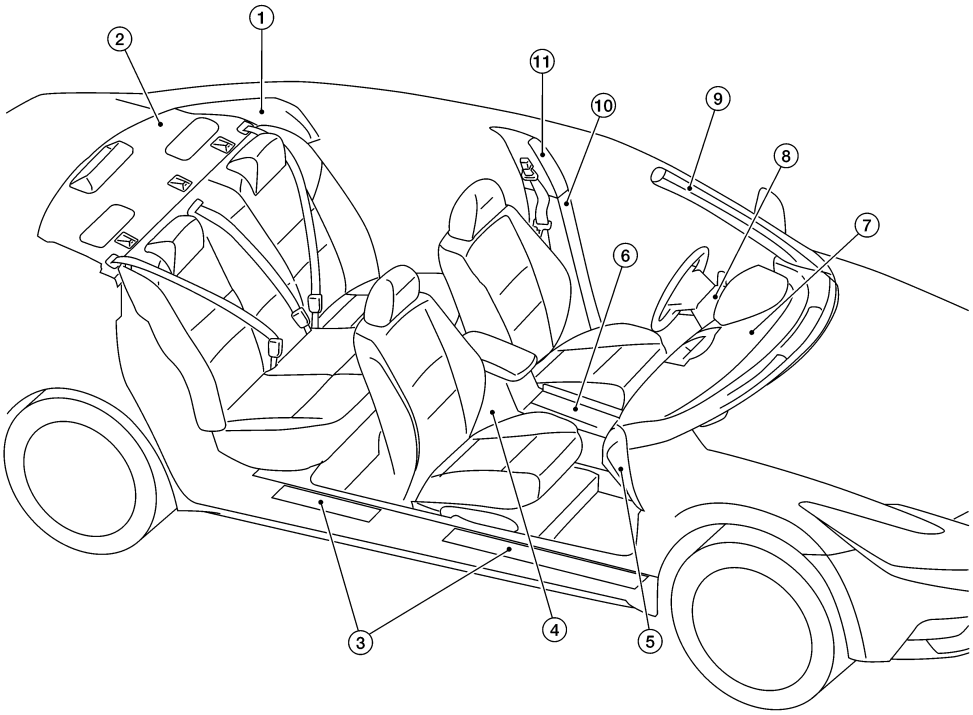
Item	Component		Abbreviation	Material
1.	Roof side molding		PC + PET	Polycarbonate + Polyester
2.	Front pillar molding		PC	Polycarbonate
3.	Front grille		ABS + TPO	Acrylonitrile Butadiene Styrene + Thermoplastic Olefine
4.	Front fog lamp	Lens	PC	Polycarbonate
		Housing	PBT + ASA	Poly Butylene Terephthalate + Acrylonitrile Styrene Acrylate
5.	Front bumper fascia		PP	Polypropylene
6.	Front combination lamp	Lens	PC	Polycarbonate
		Housing	PP	Polypropylene
7.	Center mudguard		TPO	Thermoplastic Olefine
8.	Door mirror	Base	ABS	Acrylonitrile Butadiene Styrene
		Housing		
9.	Door outside handle	Grip	PC	Polycarbonate
		Escutcheon	ABS + PC	Acrylonitrile Butadiene Styrene + Polycarbonate
10.	Front/rear mudguard		PP + EPDM	Polypropylene + Ethylene Propylene (Diene) copolymer
11.	Rear bumper fascia		PP	Polypropylene
12.	Rear combination lamp	Lens	PMMA	Poly Methyl Methacrylate
		Housing	ABS + PC	Acrylonitrile Butadiene Styrene + Polycarbonate
13.	Backup lamp	Lens	PMMA	Poly Methyl Methacrylate
		Housing	ABS + PC	Acrylonitrile Butadiene Styrene + Polycarbonate
14.	License lamp finisher		ABS	Acrylonitrile Butadiene Styrene
15.	Rear spoiler		ABS	Acrylonitrile Butadiene Styrene
16.	Rear pillar molding		PC	Polycarbonate



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Item	Component		Abbreviation	Material
1.	Rear pillar finisher		PP	Polypropylene
2.	Rear parcel shelf finisher		PP	Polypropylene
3.	Kicking plate	Front	ABS	Acrylonitrile Butadiene Styrene
		Rear	PP	Polypropylene
4.	Center console assembly		PPC	Polypropylene Composite
5.	Instrument panel side finisher		PPC	Polypropylene Composite
6.	Shift selector finisher	Base	ABS + PC	Acrylonitrile Butadiene Styrene + Polycarbonate
		Skin	ABS	Acrylonitrile Butadiene Styrene
7.	Instrument panel	Skin	TPO	Thermoplastic Olefine
		Pad	PUR	Polyurethane
		Core	PPC	Polypropylene Composite
8.	Steering column covers		PP	Polypropylene
9.	Front pillar finisher		PP	Polypropylene
10.	Center pillar lower finisher		PP	Polypropylene
11.	Center pillar upper finisher		PP	Polypropylene

REPAIRING HIGH STRENGTH STEEL

High Strength Steel (HSS)

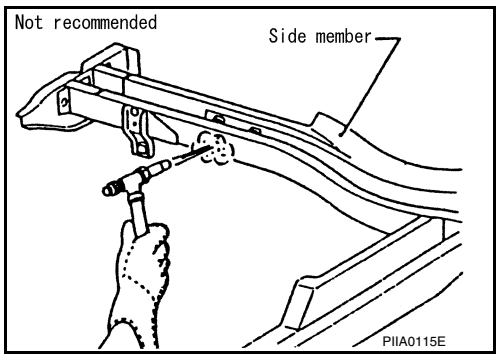
INFOID:0000000011989569

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:

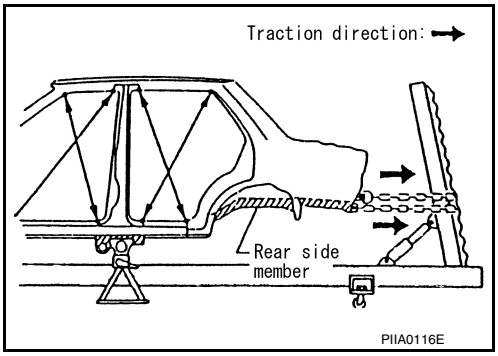
Tensile strength	Major applicable parts
590 MPa	• Roof center reinforcement • Roof rail front • Inner sill • Sill outer reinforcement • Sill outer rear reinforcement • Rear wheelhouse outer rear brace • Center pillar inner • Rear floor front extension • Rear floor front extension reinforcement • Radiator core side support • Front pillar hinge brace • Side member closing plate • Front floor center • 3rd crossmember (Front floor side component part)
780 - 1350 MPa	• Rear side member assembly • Rear side member extension • Front side member assembly • Front side member • Front side member extension • Front side member center extension • Roof side rail inner • Front pillar inner upper • Front pillar inner reinforcement • Front pillar outer reinforcement • Roof side outer reinforcement • Center pillar reinforcement • Rear crossmember center • Front side member stiffener (Front floor side component part) • 2nd crossmember (Front floor side component part)

Read the following precautions when repairing HSS:

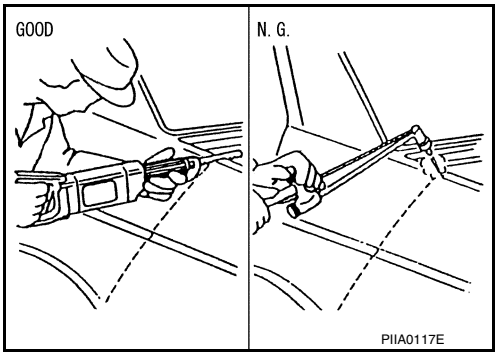
1. Additional points to consider:
   - The repair of reinforcements (such as side members) by heating is not recommended since it may weaken the component. When heating is unavoidable, do not heat HSS parts above 550°C (1,022°F).
     Verify heating temperature with a thermometer.
     (Crayon-type and other similar type thermometers are appropriate.)



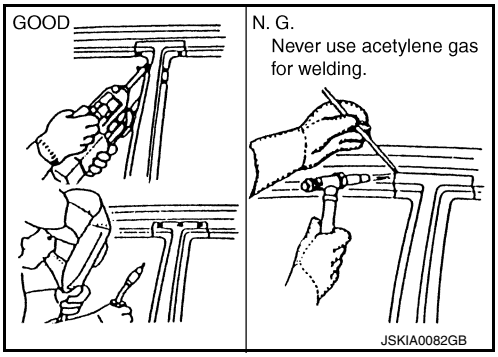
- When straightening body panels, use caution in pulling any HSS panel. Because HSS is very strong, pulling may cause deformation in adjacent portions of the body. In this case, increase the number of measuring points and carefully pull the HSS panel.



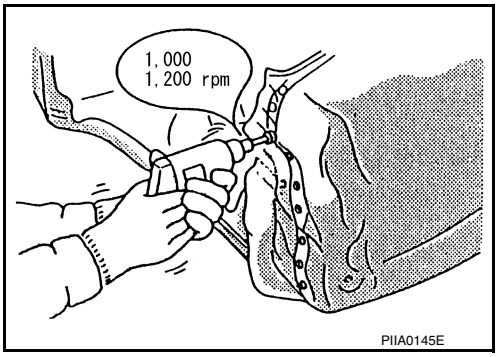
- When cutting HSS panels, avoid gas (torch) cutting if possible. Instead, use a saw to avoid weakening surrounding areas due to heat. If gas (torch) cutting is unavoidable, allow a minimum margin of 50 mm (1.97 in).



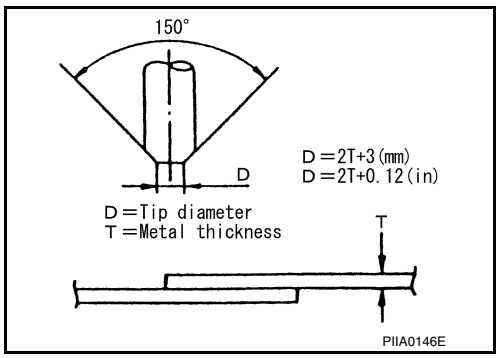
- When welding HSS panels, use spot welding whenever possible in order to minimize weakening surrounding areas due to heat.
  If spot welding is impossible, use MIG. welding. Do not use gas (torch) for welding because it is inferior in welding strength.



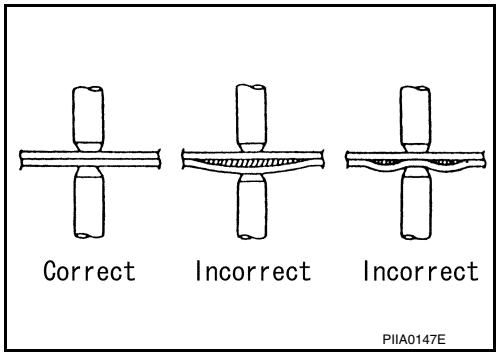
- The spot weld on HSS panels is harder than that of an ordinary steel panel.
  Therefore, when cutting spot welds on a HSS panel, use a low speed high torque drill (1,000 to 1,200 rpm) to increase drill bit durability and facilitate the operation.



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.



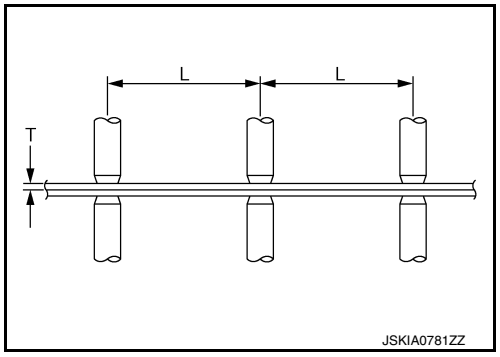
- The panel surfaces must fit flush to each other, leaving no gaps.



- 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

Do not cut and join the lower lock pillar reinforcement (center pillar reinforcement inside frame parts) because its material is high strength steel plate (ultra high strength steel plate).
The center pillar reinforcement must be replaced if this part is damaged.

Welding of Ultra High Strength Steel

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SPOT WELDING

Spot welding is limited to ultra high strength steel of (tensile strength: 980 MPa) according to the welding conditions listed below.

CAUTION:
- **If the below welding conditions cannot be met, then perform plug welding.**
- **Never spot weld ultra high strength steel of tensile strength more than 980 MPa. For this type of ultra high strength steel, perform plug welding.**
- **The below welding condition is applicable only to this vehicle. Never apply these same conditions to other vehicles.**

Welding condition

Welder tip diameter	**6 MM**
Welding pressure (Gun force)	**3175 N**
Welding current	**8125 A**
Weld time*	**.24 sec (12 cyc: 50 Hz)** **.23 sec (14 cyc: 60 Hz)**
Panel configuration	**Combination of a plate of tensile strength of 980 MPa and that of tensile strength less than 980 MPa. (Up to 3 plates)**

*** Select weld time based on the frequency (Hz) of the electrical power supplied in your area.**

PLUG WELDING

To weld ultra high strength steel of tensile strength 980 MPa or more, perform plug welding observing the welding hole diameter described in the manual.

CAUTION:

- **To perform plug welding, use fuel mixture (Ar 80% + CO2 20%) for shielding gas of welder.**
- **Never use carbon dioxide gas (CO2 100%) as shielding gas of welder. Using CO2 100% gas results in inadequate weld strength.**
- **When welding hole diameter cannot be met, make multiple holes (smaller diameter) so that the sum of the holes areas equals the area of the original weld hole.**

PREPARATION

REPAIRING MATERIAL

Foam Repair

INFOID:0000000011989572

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:

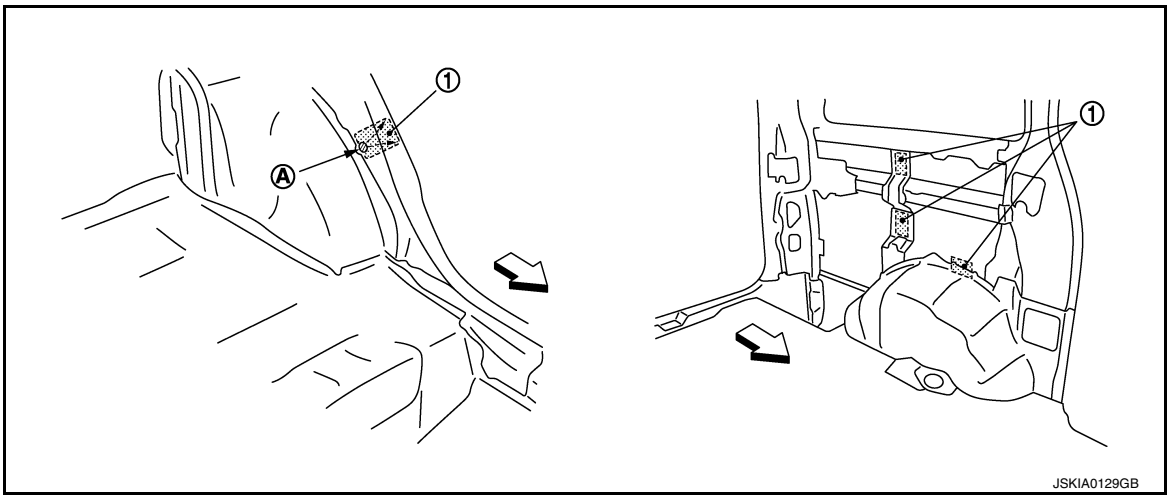
1. Fill procedures after installation of service part.

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.



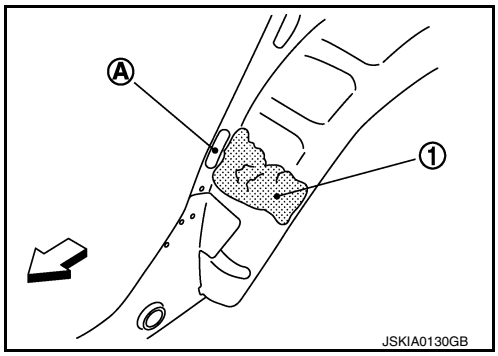
1. Urethane foam
A. Nozzle insert hole
⇦ Front

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 with enough foam material on the wheelhouse outer side to close the gap with the service part while avoiding the flange area.



1. Urethane foam
A. Fill while avoiding flange area
⇦ Front

d. Install service part.
NOTE:
Refer to the label on the urethane foam container for information on working times.

BODY COMPONENT PARTS

Underbody Component, Engine Compartment Parts

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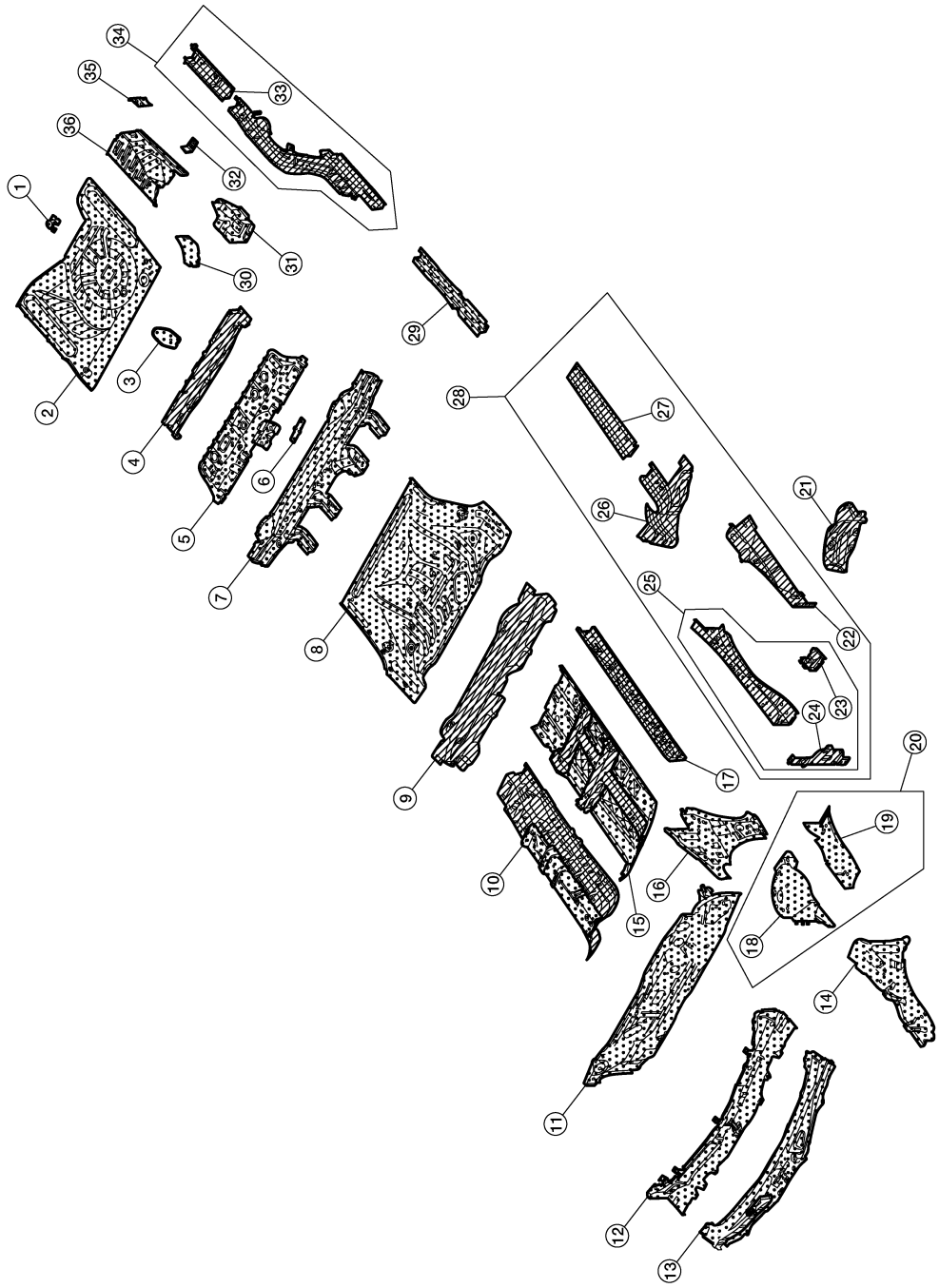

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: Both sided anti-corrosive precoated steel portions

: Both sided anti-corrosive steel and HSS portions

No.	Parts name	Tensile strength (MPa)	Both sided anti-corrosive precoated steel sections	Aluminum portion
1.	Spare tire clip bracket	Under 440	x	—
2.	Rear floor rear	Under 440	x	—
3.	Rear seat belt anchor inner reinforcement	390	x	—
4.	Rear cross member center	390	x	—
5.	Rear seat cross member	Under 440	x	—
6.	Rear seat cross member reinforcement	440	x	—
7.	Rear floor front extension reinforcement	590	x	—
8.	Rear floor front	Under 440	x	—
9.	Rear floor front extension	590	x	—
10.	Front floor center assembly	440-590	x	—
11.	Lower dash	440	x	—
12.	Upper dash	Under 440	x	—
13.	Cowl top extension	Under 440	x	—
14.	Hoodledge reinforcement	Under 440	x	—
15.	Front floor side	440-1350	x	—
16.	Dash side	Under 440	x	—
17.	Inner sill	590	x	—
18.	Lower hoodledge rear	390	x	—
19.	Upper hoodledge	390	x	—
20.	Hoodledge assembly	390-590	x	—
21.	Lower dash cross member reinforcement	Under 440	x	—
22.	Side member closing plate	590	x	—
23.	Front suspension member mounting bracket	590	x	—
24.	Radiator core side support	590	x	—
25.	Front side member	590-780	x	—
26.	Front side member extension	780	x	—
27.	Front side member center extension	780	x	—
28.	Front side member assembly	590-780	x	—
29.	Front side member rear extension	440	x	—
30.	Rear floor plate	Under 440	x	—
31.	Rear tie down hook	Under 440	x	—
32.	Rear bumper side bracket	Under 440	x	—
33.	Rear side member extension	440	x	—
34.	Rear side member assembly	440-780	x	—
35.	Trunk trim bracket	Under 440	x	—
36.	Rear floor side	Under 440	x	—

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.

Body Component Parts

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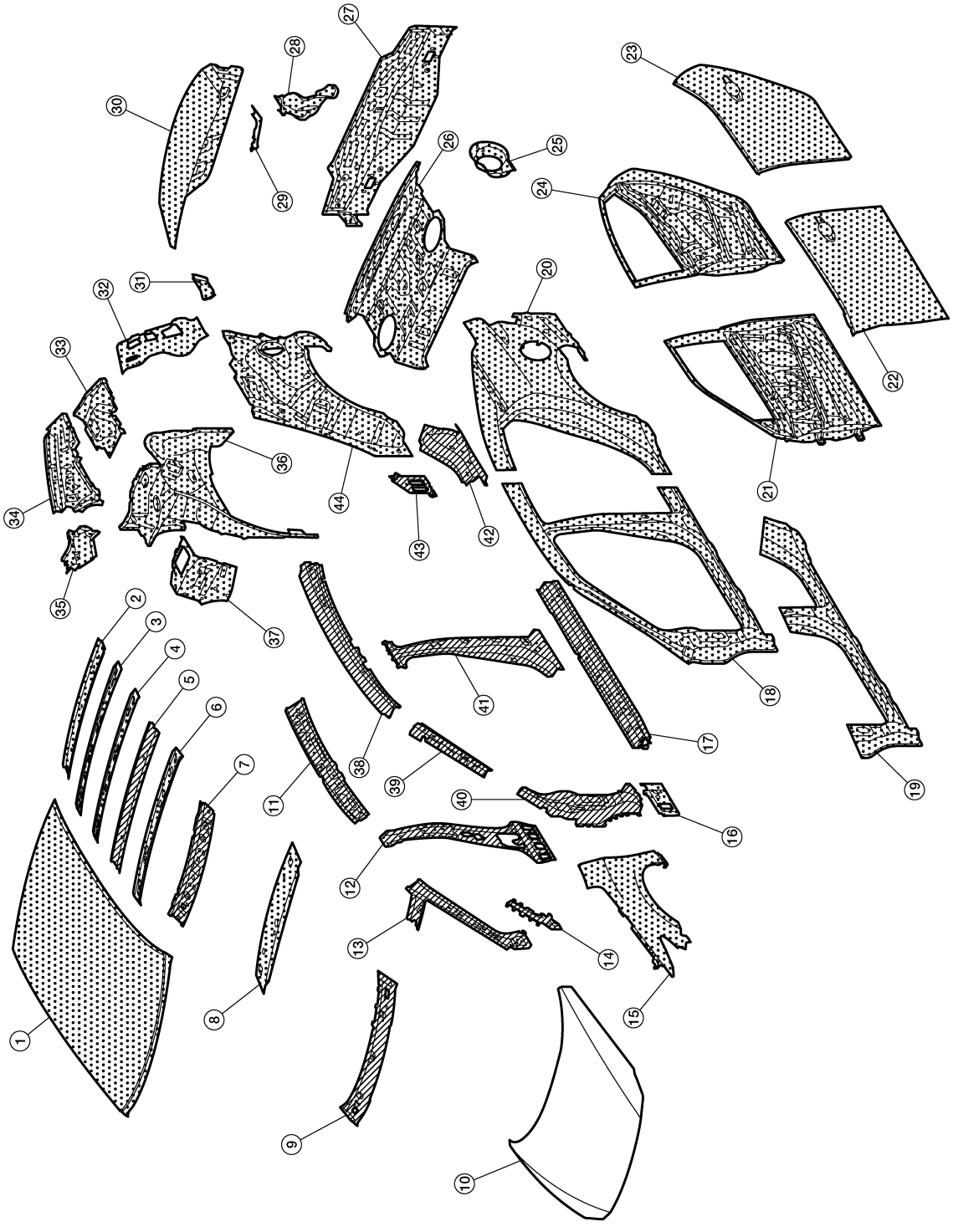


:Both sided anti-corrosive precoated steel portions

:Both sided anti-corrosive steel and HSS portions

No.	Parts name	Tensile strength (MPa)	Both sided anti-corrosive precoated steel sections	Aluminum portion
1.	Standard roof	Under 440	X	—
2.	Roof rail rear (with standard roof)	440	X	—
3.	Roof bow 3rd rear (with standard roof)	Under 440	X	—
4.	Roof bow 3rd front (with standard roof)	Under 440	X	—
5.	Roof center reinforcement (with standard roof)	590	X	—
6.	Roof bow 1st (with standard roof)	Under 440	X	—
7.	Roof rail front (with standard roof)	590	X	—
8.	Roof rail rear (with moonroof)	440	X	—
9.	Roof rail front (with moonroof)	590	X	—
10.	Hood	—	—	X
11.	Roof side rail inner	980	X	—
12.	Center pillar inner	590	X	—
13.	Front pillar inner upper	980	X	—
14.	Front pillar inner reinforcement	1180	X	—
15.	Front fender	Under 440	X	—
16.	Front pillar lower reinforcement	Under 440	X	—
17.	Sill outer reinforcement	590	X	—
18.	Body side outer front	Under 440	X	—
19.	Body side outer sill	Under 440	X	—
20.	Body side outer rear	Under 440	X	—
21.	Front door inner	Under 440	X	—
22.	Front door outer	340	X	—
23.	Rear door outer	340	X	—
24.	Rear door inner	Under 440	X	—
25.	Fuel filler base	Under 440	X	—
26.	Parcel shelf	Under 440	X	—
27.	Rear panel	Under 440	X	—
28.	Rear combination lamp base	Under 440	X	—
29.	Rear fender extension	Under 440	X	—
30.	Trunk lid assembly	Under 440	X	—
31.	Rear wheelhouse outer extension	Under 440	X	—
32.	Rear pillar inner reinforcement	Under 440	X	—
33.	Parcel shelf side	Under 440	X	—
34.	Rear pillar inner	Under 440	X	—
35.	Roof rail rear brace	Under 440	X	—
36.	Rear wheelhouse inner	Under 440	X	—
37.	Rear seatback side support	Under 440	X	—
38.	Roof side outer reinforcement	980	X	—
39.	Front pillar outer reinforcement	980	X	—
40.	Front pillar hinge brace	590	X	—
41.	Center pillar reinforcement	1180	X	—
42.	Sill outer rear reinforcement	590	X	—

No.	Parts name	Tensile strength (MPa)	Both sided anti-corrosive precoated steel sections	Aluminum portion
43.	Rear wheelhouse outer rear brace	590	X	—
44.	Rear outer wheelhouse	Under 440	X	—

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.

REMOVAL AND INSTALLATION

CORROSION PROTECTION

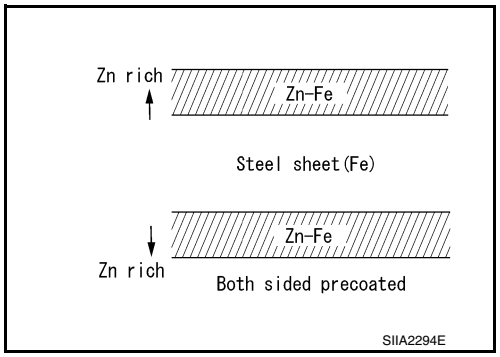
Description

INFOID:0000000011989575

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.



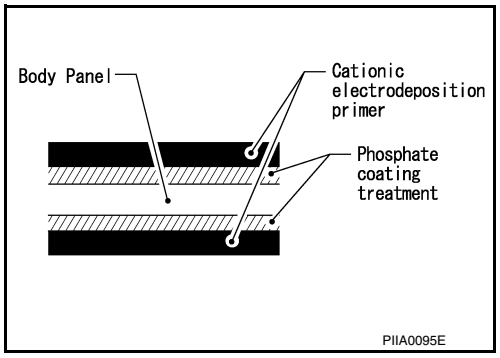
NISSAN Genuine Service Parts are fabricated from galvannealed steel. Therefore, it is recommended that GENUINE NISSAN PARTS or equivalent be used for panel replacement to maintain the anti-corrosive performance built into the vehicle at the factory.

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.

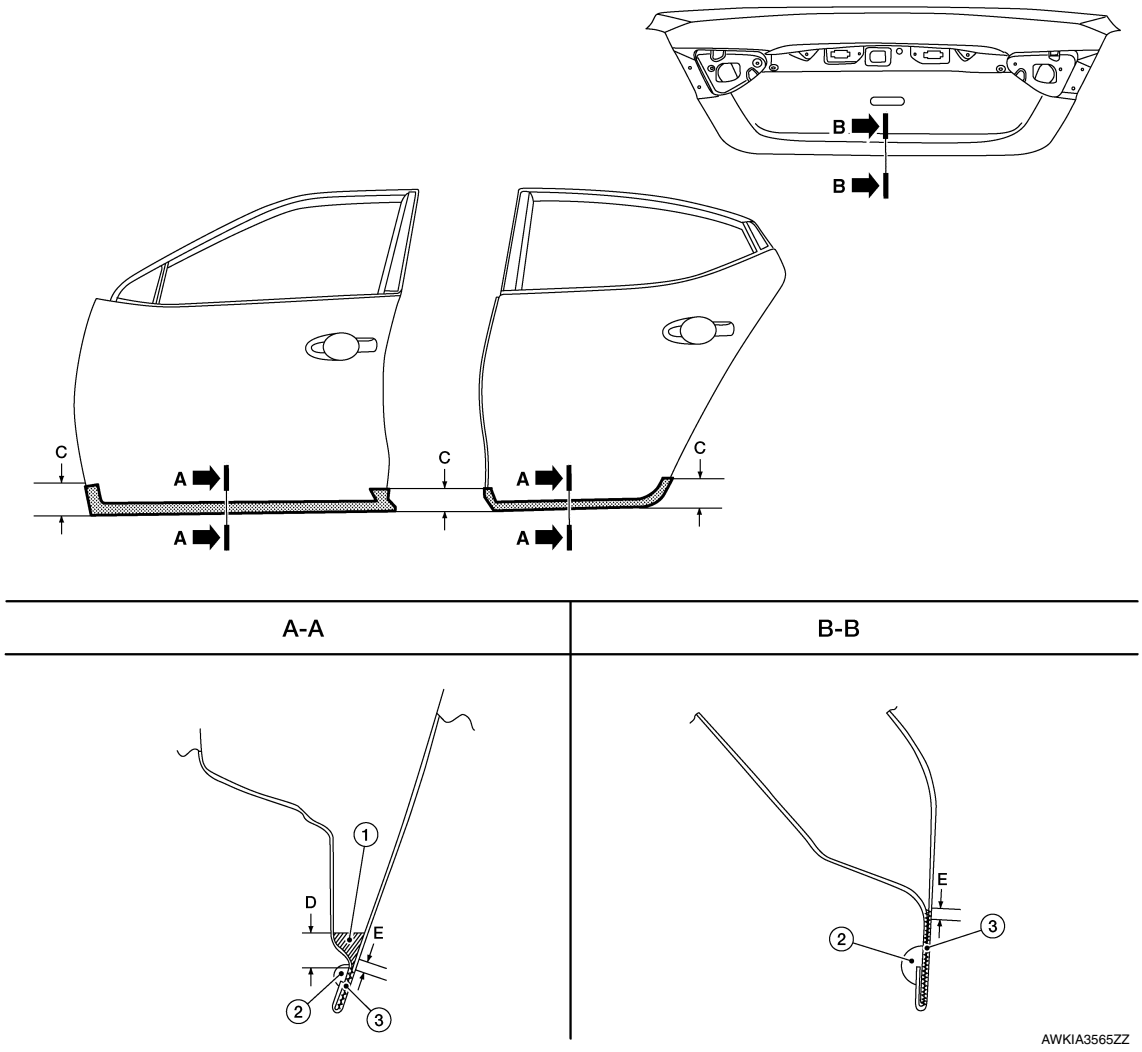


NISSAN Genuine Service Parts are also treated in the same manner. Therefore, it is recommended that GENUINE NISSAN PARTS or equivalent be used for panel replacement to maintain anti-corrosive performance built into the vehicle at the factory.

Anti-Corrosive Wax

INFOID:0000000011989576

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.



1. Anti-corrosive wax
2. Body caulk
3. Panel adhesive

C. 100 mm (3.94 in)
D. 10 mm (0.39 in)
E. 2 mm (0.08 in)

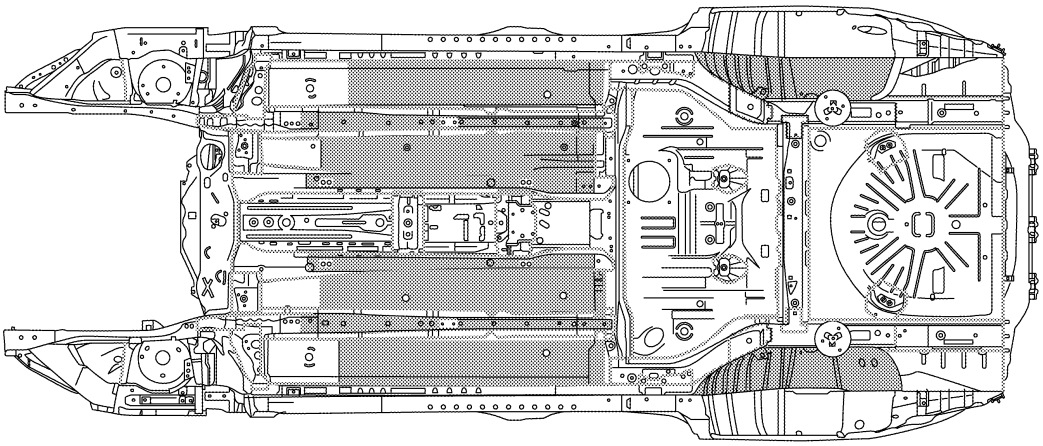
Undercoating

INFOID:0000000011989577

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 unless specified. Avoid areas 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.



AWKIA3537ZZ

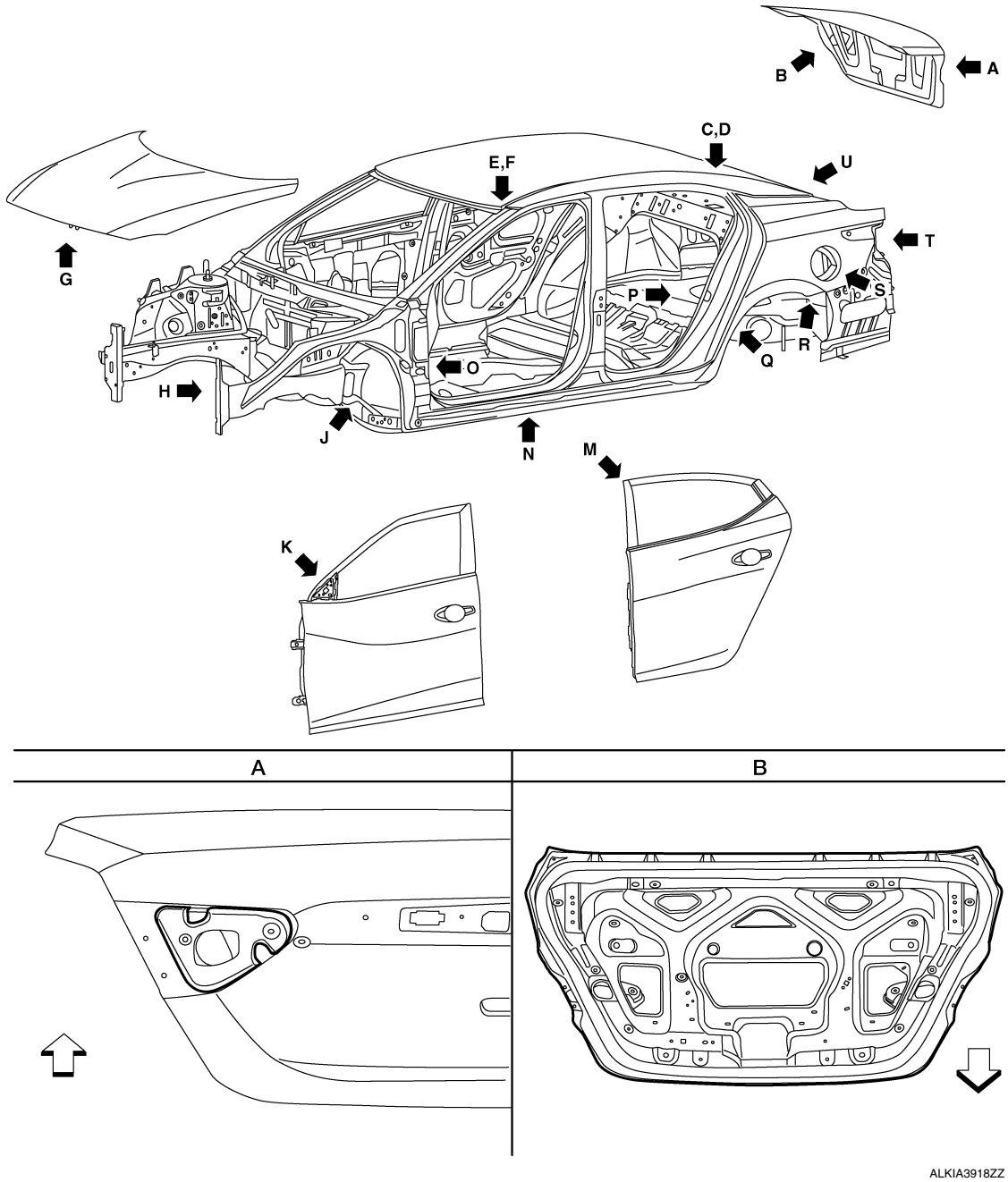
Undercoated areas are shaded.

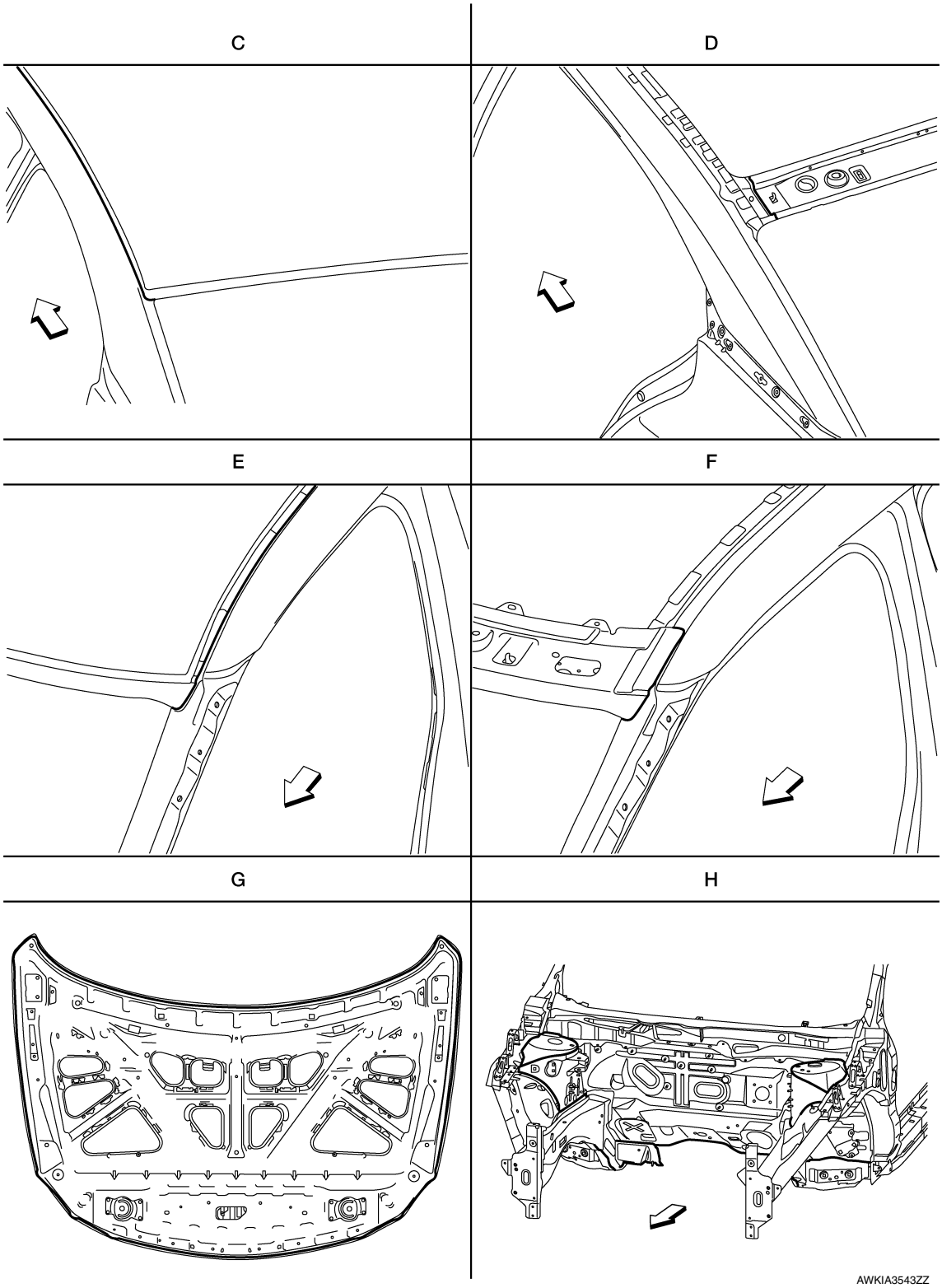
BODY SEALING

Description

INFOID:0000000011989578

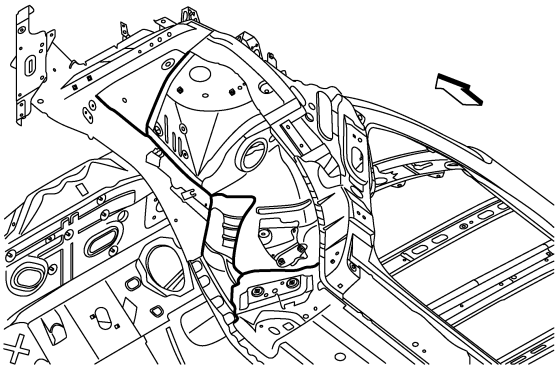
The following figure shows the areas which are sealed at the factory. Sealant which has been applied to these areas should be smooth and free from cuts or gaps. Care should be taken not to apply an excess amount of sealant and not to allow other unaffected parts to come into contact with the sealant.



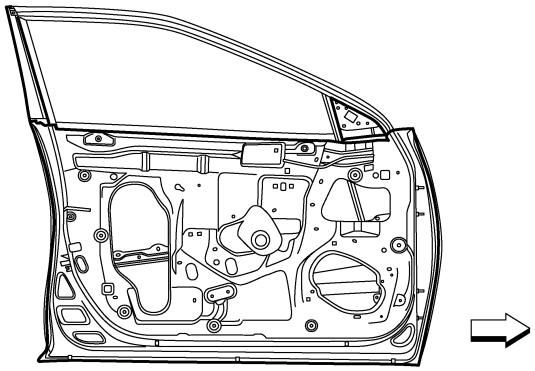


C. Without moonroof
D. With moonroof
E. Without moonroof
F. With moonroof
⇦ Front

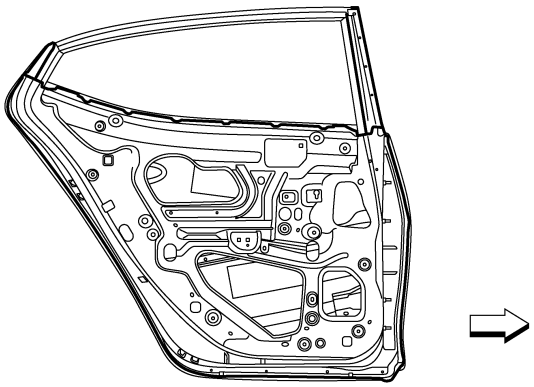
J



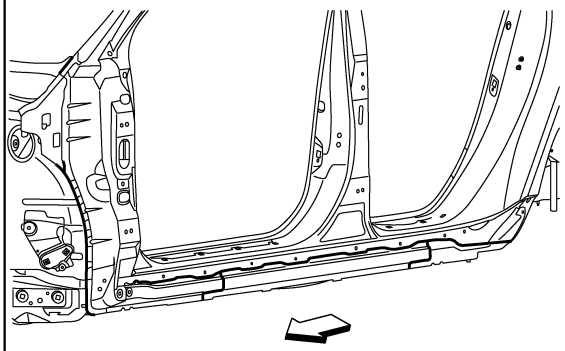
K



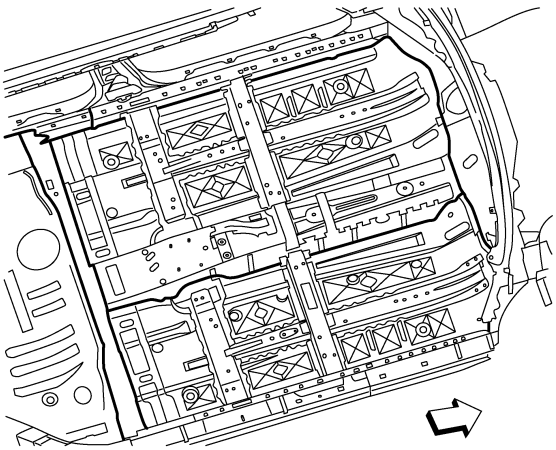
M



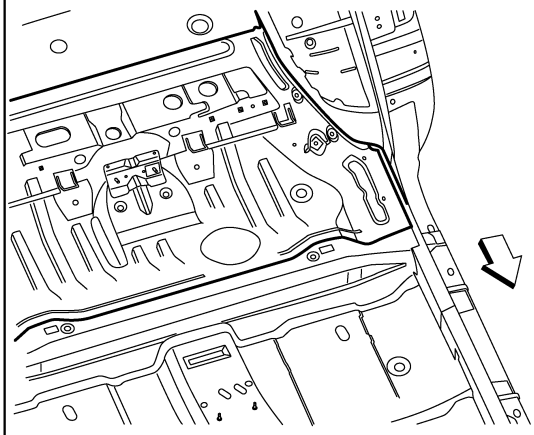
N



O

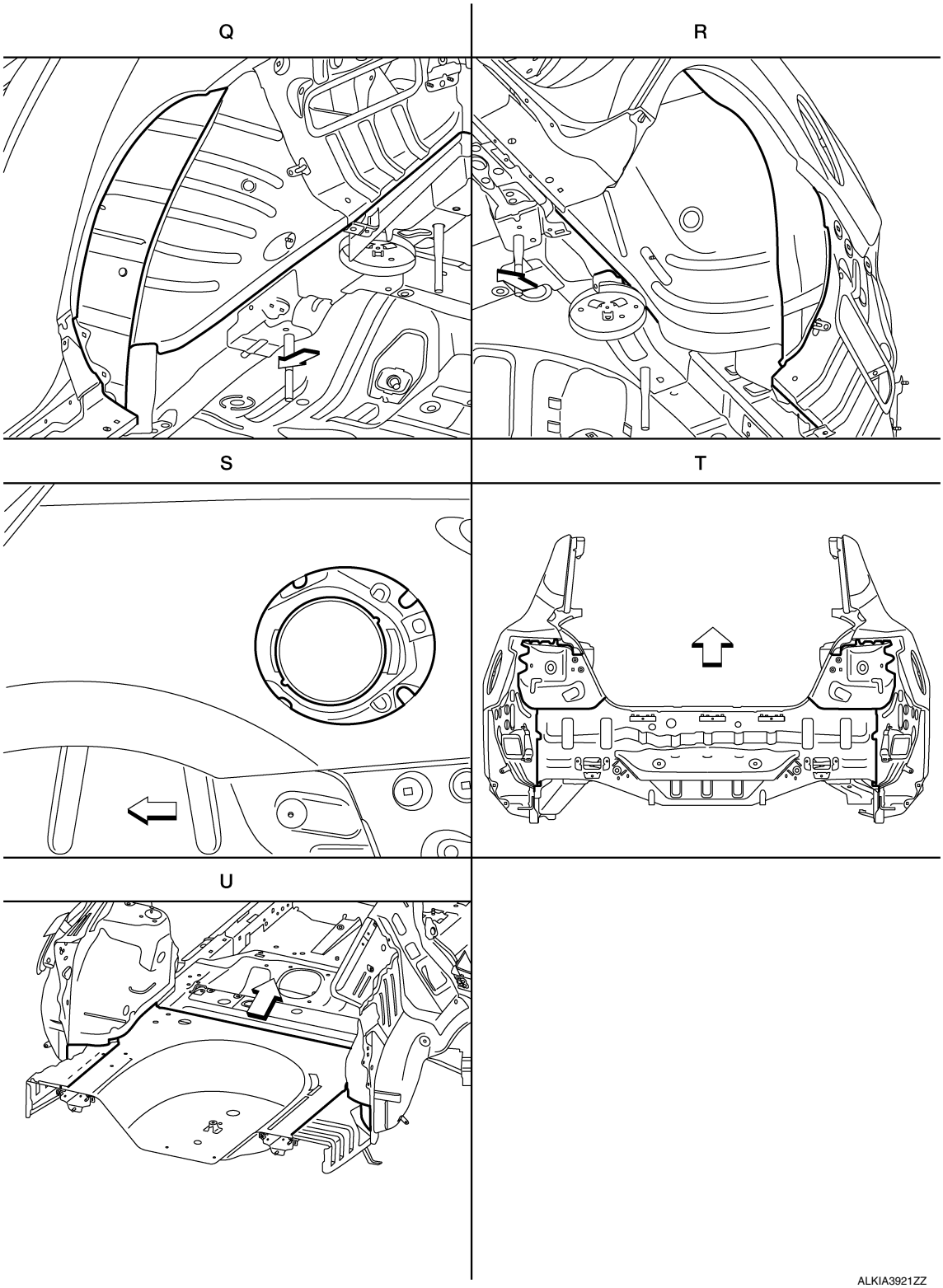


P



ALKIA3920ZZ

⇦ Front

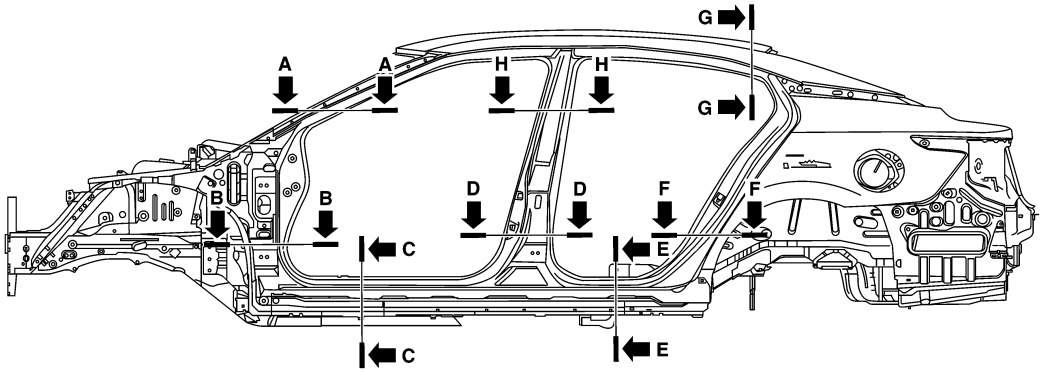


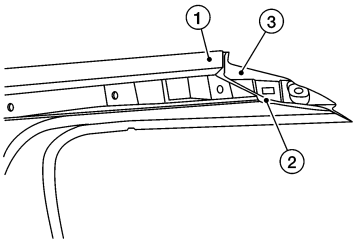
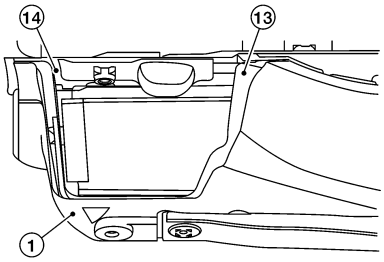
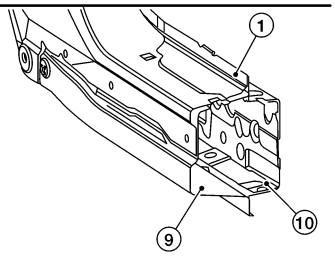
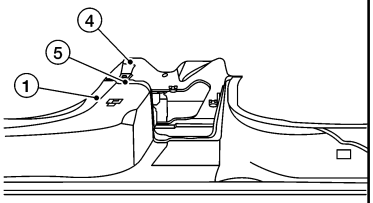
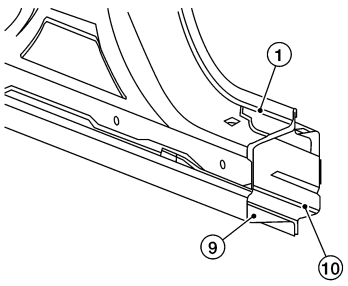
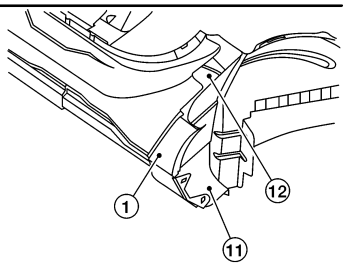
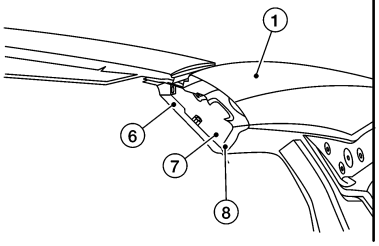
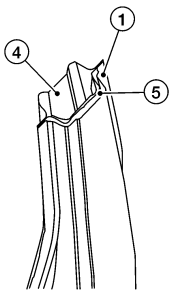
⇦ Front

BODY CONSTRUCTION

Body Construction

INFOID:0000000011989579



A-A	B-B	C-C
		
D-D	**E-E**	**F-F**
		
G-G	**H-H**	
		

ALKIA3904ZZ

1. Body side outer
2. Upper front pillar reinforcement
3. Front pillar inner upper
4. Inner center pillar
5. Center pillar reinforcement
6. Back pillar inner reinforcement
7. Roof rail brace assembly
8. Back pillar inner
9. Outer sill reinforcement

10. Rear sill assembly
11. Rear wheel housing assembly
12. Rear wheelhouse outer
13. Front hinge pillar lower reinforcement
14. Dash side inner

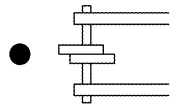
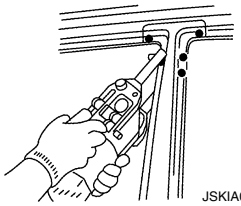
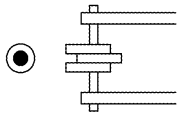
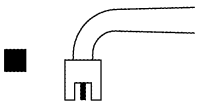
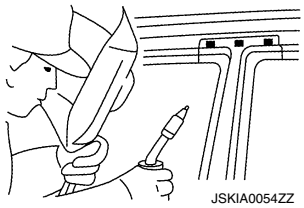
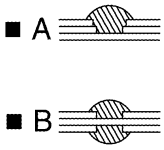
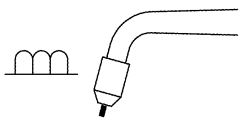
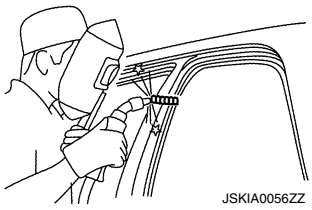
REPLACEMENT OPERATIONS

Description

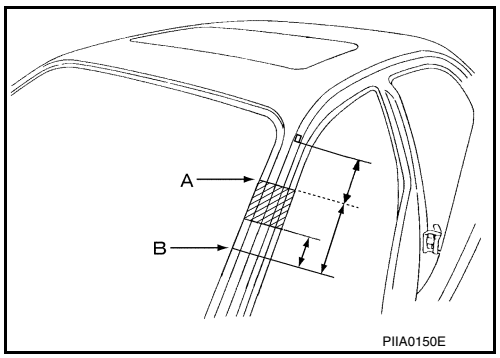
INFOID:0000000011989580

- 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 the Body Repair Manual (Fundamentals) in order to ensure that the original functions and quality of the vehicle are maintained. The Body Repair Manual (Fundamentals) contains additional information, including cautions and warnings, that are not included in this manual. Technicians should refer to both manuals to ensure proper repair.
- Please note that this information is prepared for worldwide usage, and as such, certain procedures might not apply in some regions or countries.

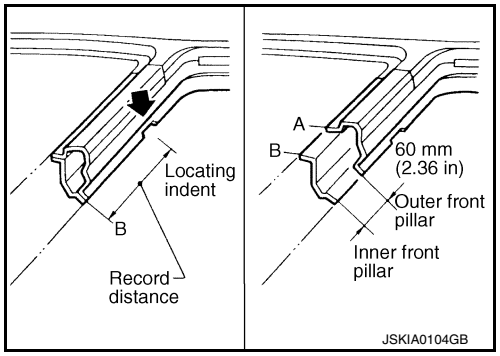
The symbols used in this section for welding operations are shown below.

Symbol marks	Description	
 JSKIA0049ZZ	2-spot welds	 JSKIA0053ZZ
 JSKIA0050ZZ	3-spot welds	
 JSKIA0051ZZ	MIG plug weld	 JSKIA0054ZZ For 3 panels plug weld method  JSKIA0055ZZ
 JSKIA0052ZZ	MIG seam weld / Point weld	 JSKIA0056ZZ

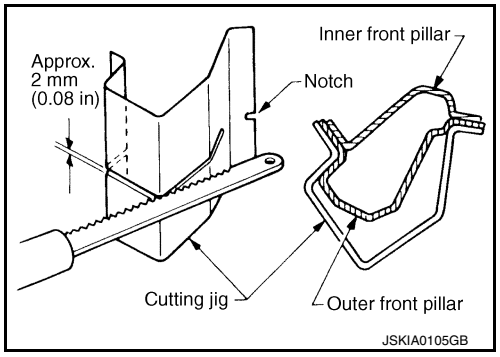
- Front pillar butt joint can be determined anywhere within shaded area as shown in the figure. The best location for the butt joint is at position A due to the construction of the vehicle.



- 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 the inner front pillar cut position.

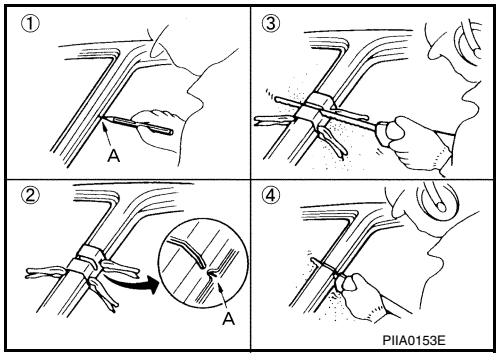


- Prepare a cutting jig to make outer pillar easier to cut. Also, this will permit the service part to be accurately cut at the joint position.



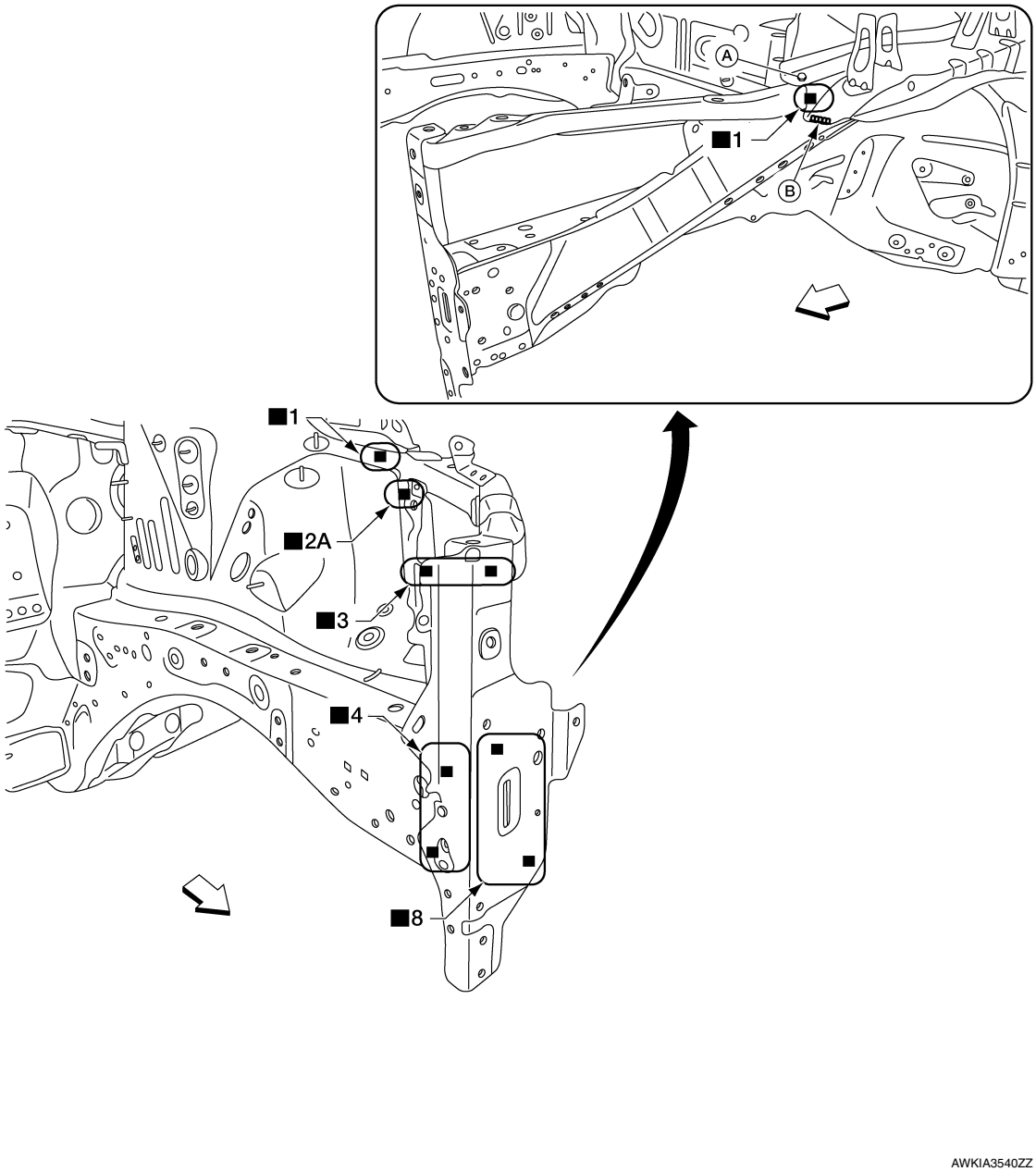
- An example of cutting operation using a cutting jig is as per the following.

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.



Radiator Side Support

INFOID:0000000012075642



AWKIA3540ZZ

Replacement parts

- Radiator side support (LH)

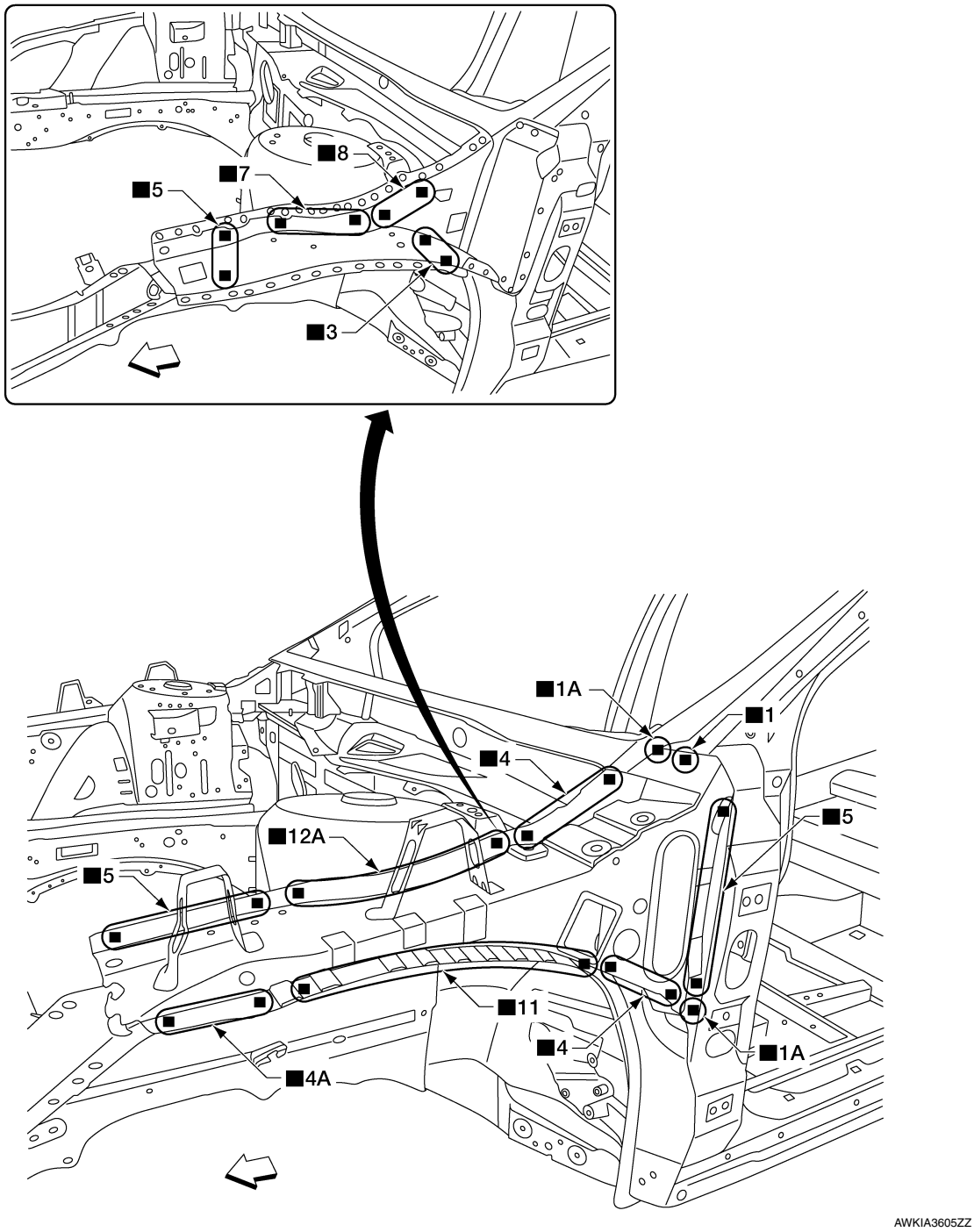
A. Bolt

B. 25.4 mm (1.0 in)

⇦ Front

Hoodledge

INFOID:0000000011989581



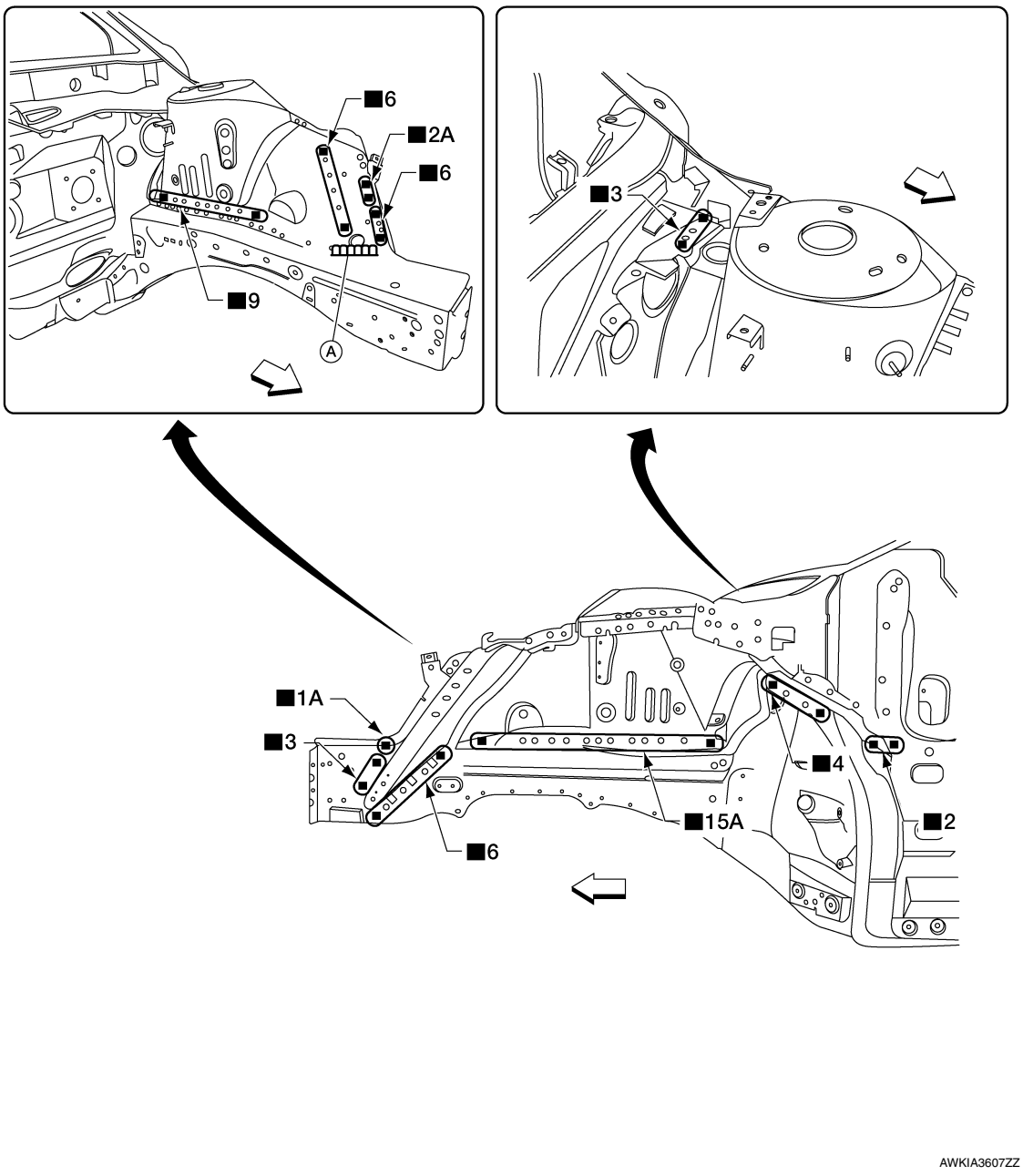
Replacement parts

- Hoodledge
- Hoodledge reinforcement

⇦ Front

Strut Housing

INFOID:0000000012080583



AWKIA3607ZZ

Replacement parts

- Strut Housing
- Strut housing reinforcement

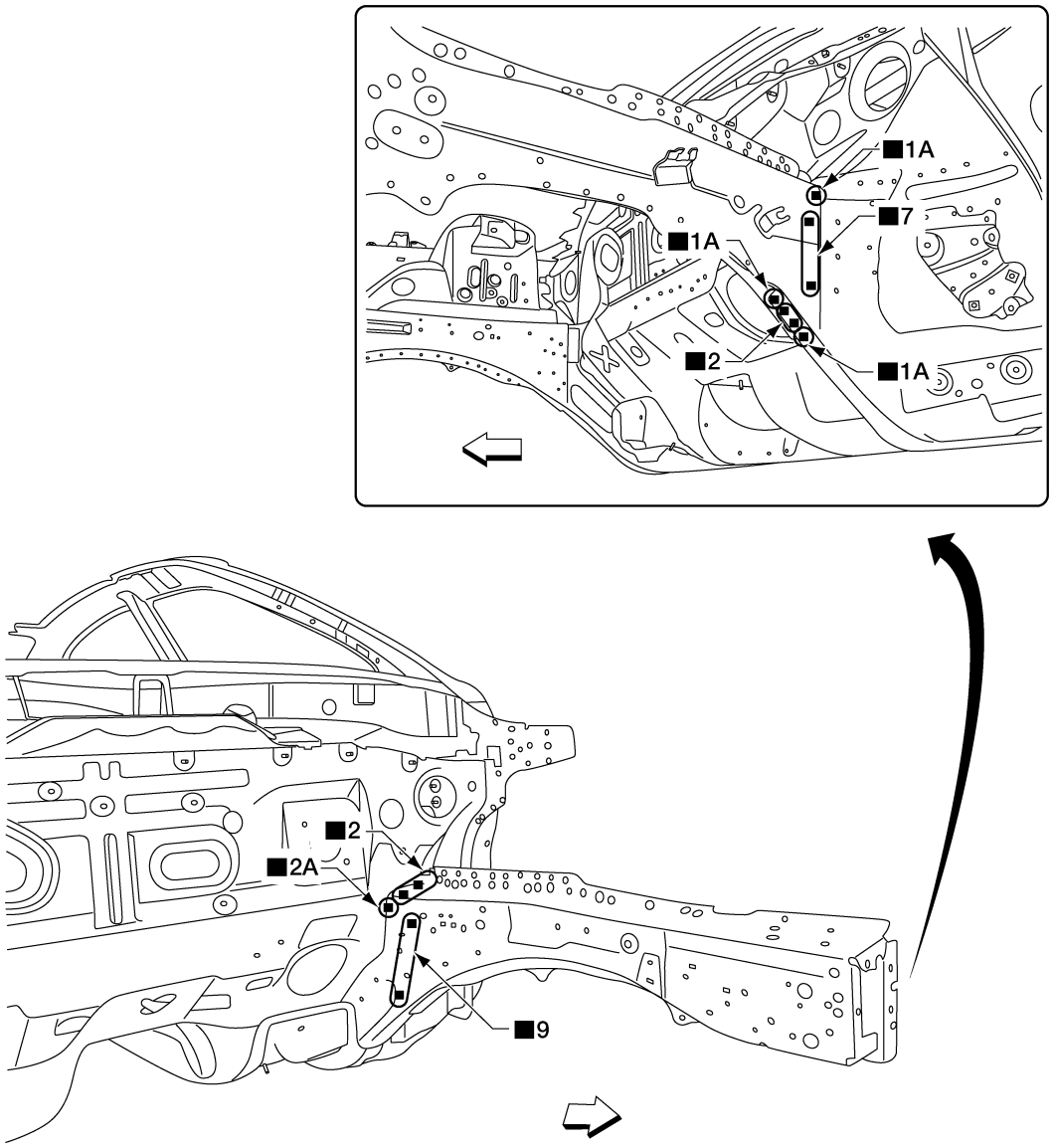
A. 25.4 mm (1.0 in)

⇦ Front

Front Side Member (Partial Replacement)

INFOID:0000000011989582

Work after hoodledge assembly and front strut support assembly have been removed.



AWKIA3609ZZ

Replacement parts

- Front side member

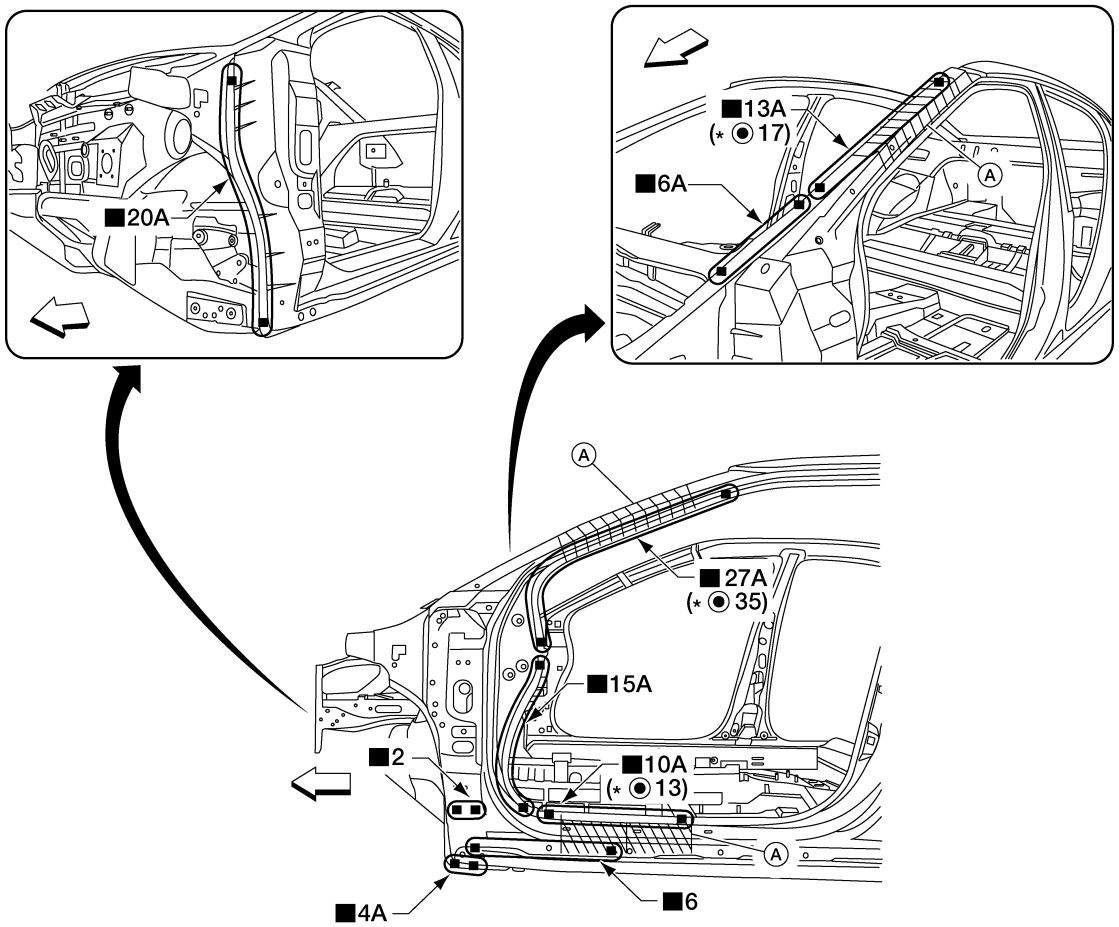
⇦ Front

Front Pillar

INFOID:0000000011989583

OUTER

- Work after the upper hoodledge has been removed.



AWKIA3538ZZ

Replacement parts

- Front pillar section of front body side outer

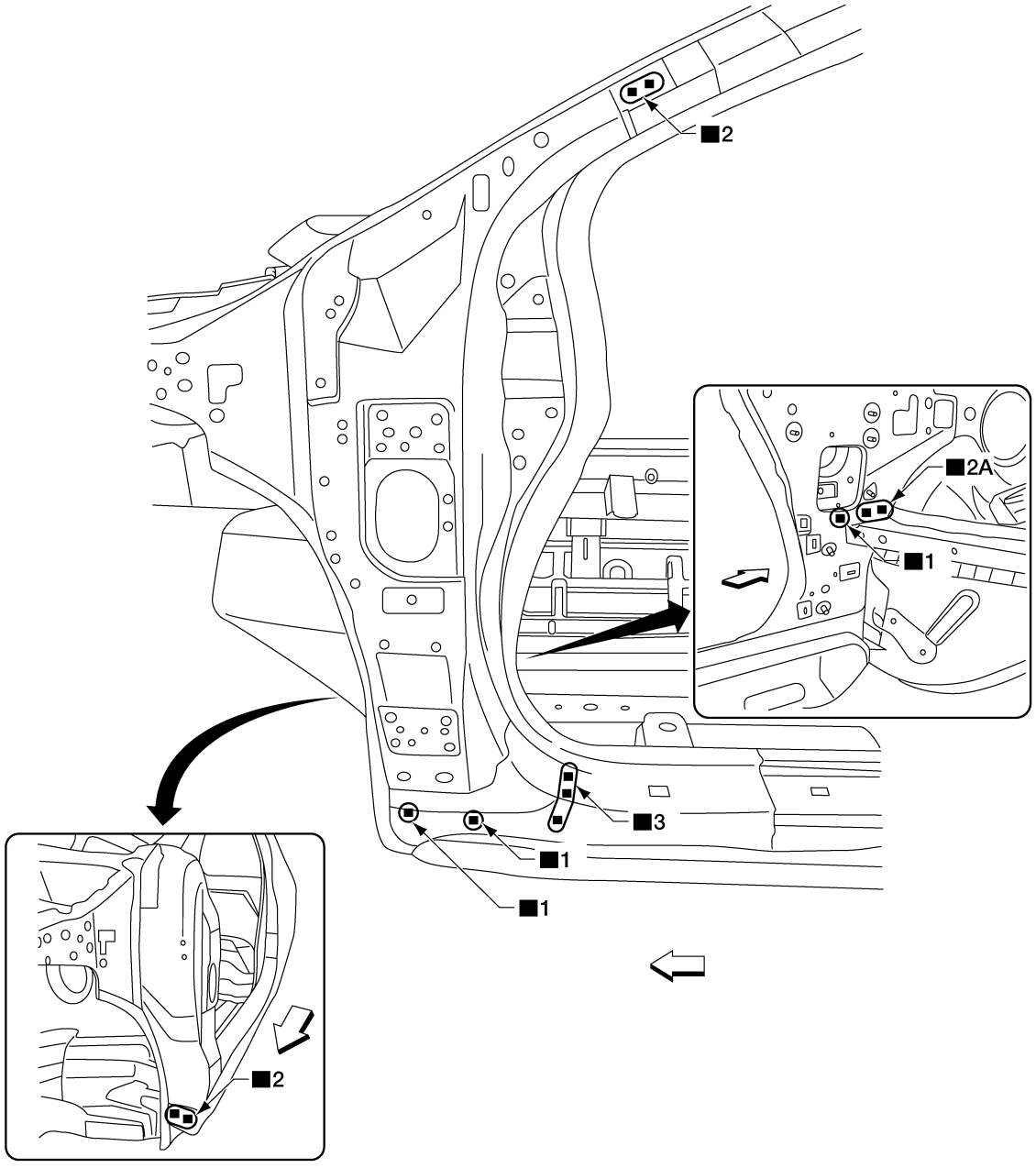
A. Sectioning area

⇦ Front

∗ For spot welding of steel plate of strength 980 MPa, observe the indicated welding conditions. Refer to BRM-9, "Welding of Ultra High Strength Steel".

HINGE PILLAR BRACE

- Work after front pillar outer has been removed.



ALKIA3932ZZ

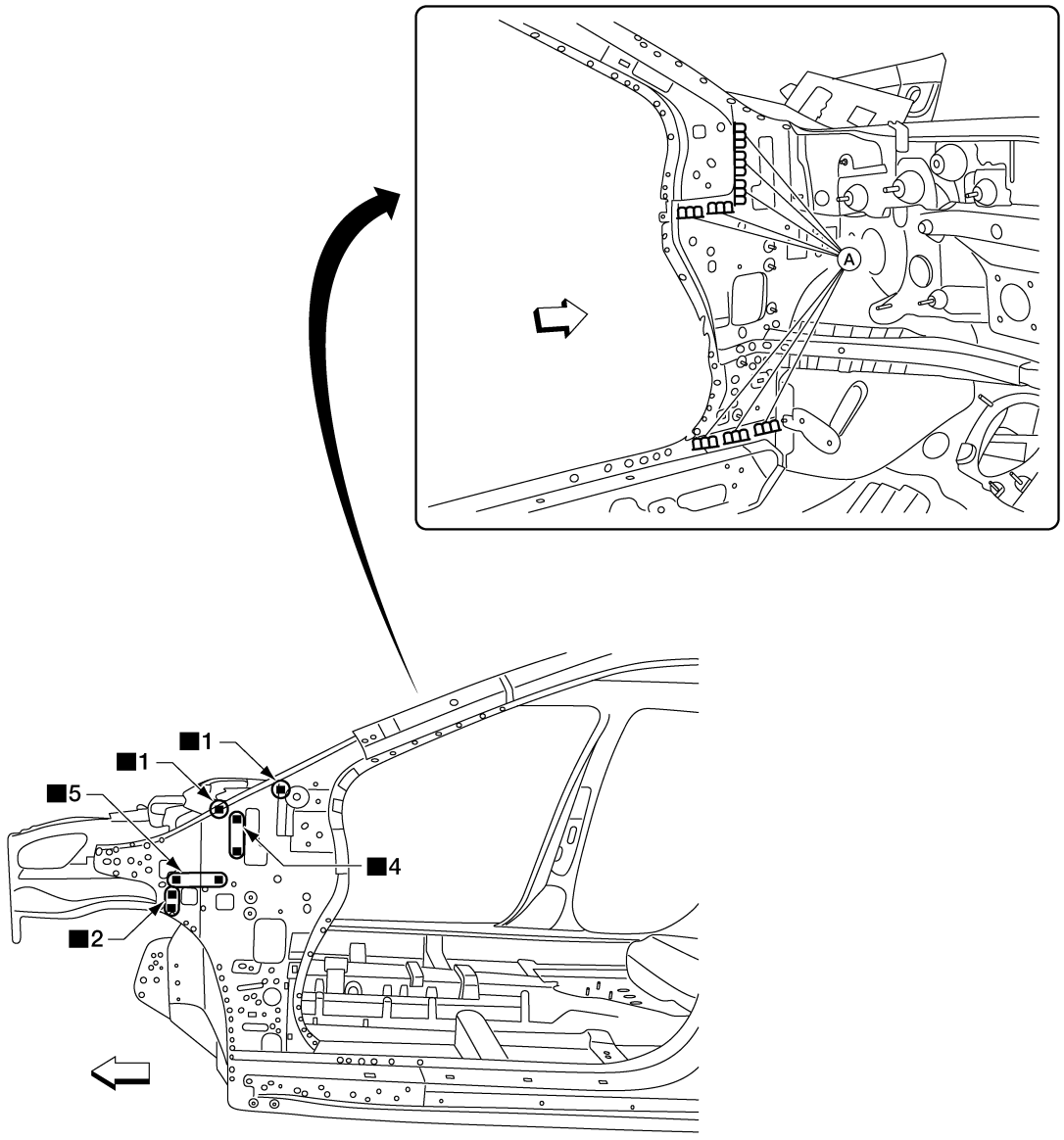
Replacement parts

- Front pillar inner reinforcement ⇦ Front

Dash Side

INFOID:0000000011989584

Work after the front pillar portion of body side inner reinforcement and the front pillar lower hinge brace have been removed.



ALKIA3933ZZ

Replacement parts

- Dash side

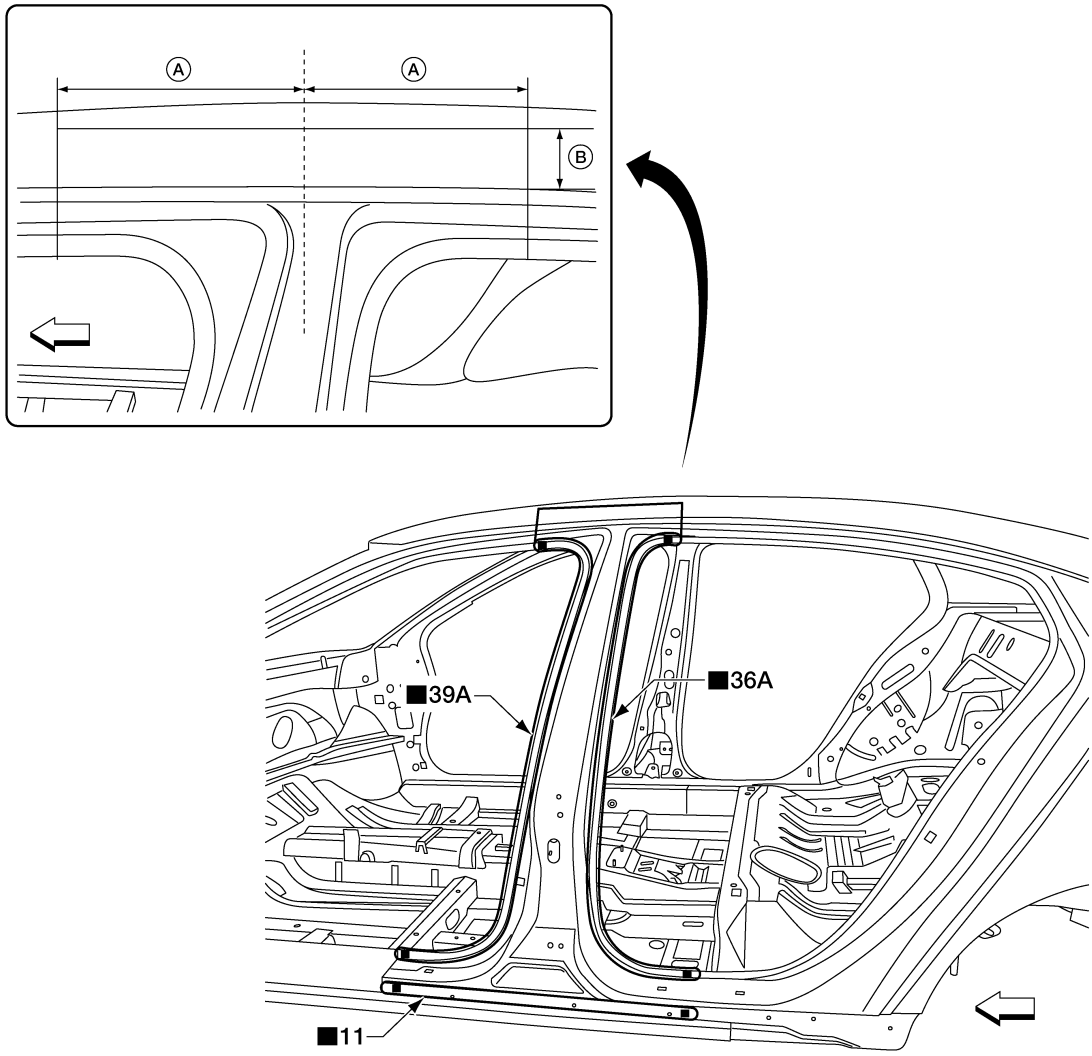
A. 25.4 mm (1.0 in)

⇦ Front

Center Pillar

INFOID:0000000011989585

OUTER



ALKIA3961ZZ

Replacement parts

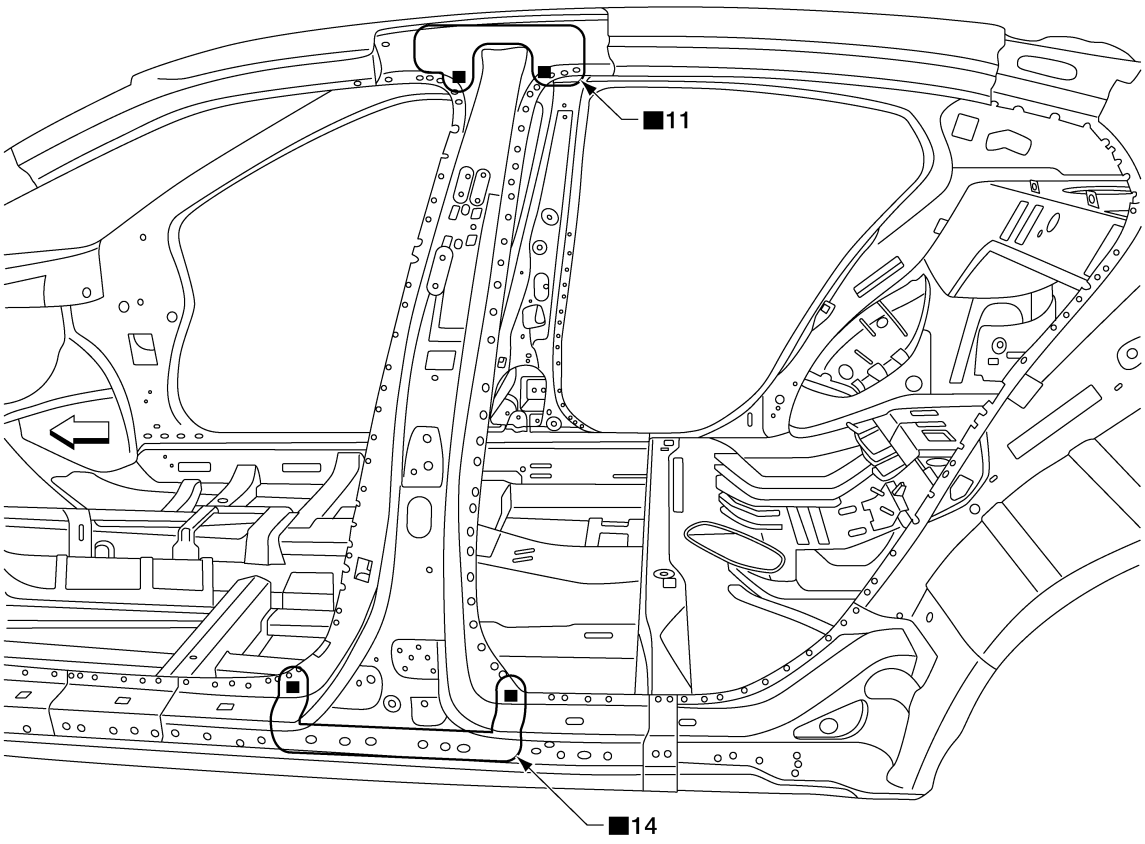
- Center pillar portion of front body side outer

A. 120 mm (4.72 in) B. 50 mm (1.97 in)

⇦ Front

REINFORCEMENT

Work after center pillar portion of front body side outer has been removed.

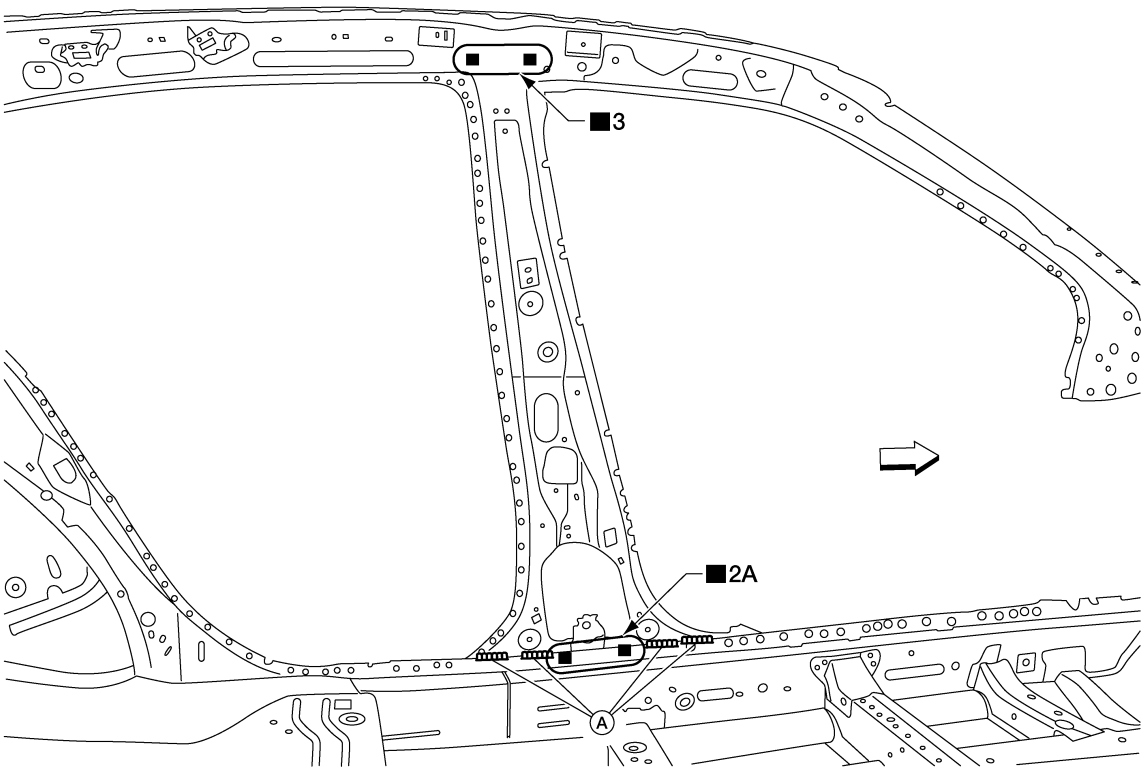


ALKIA3958ZZ

Replacement parts

- Center pillar reinforcement

⇦ Front



ALKIA3959ZZ

Replacement parts

- Center pillar inner

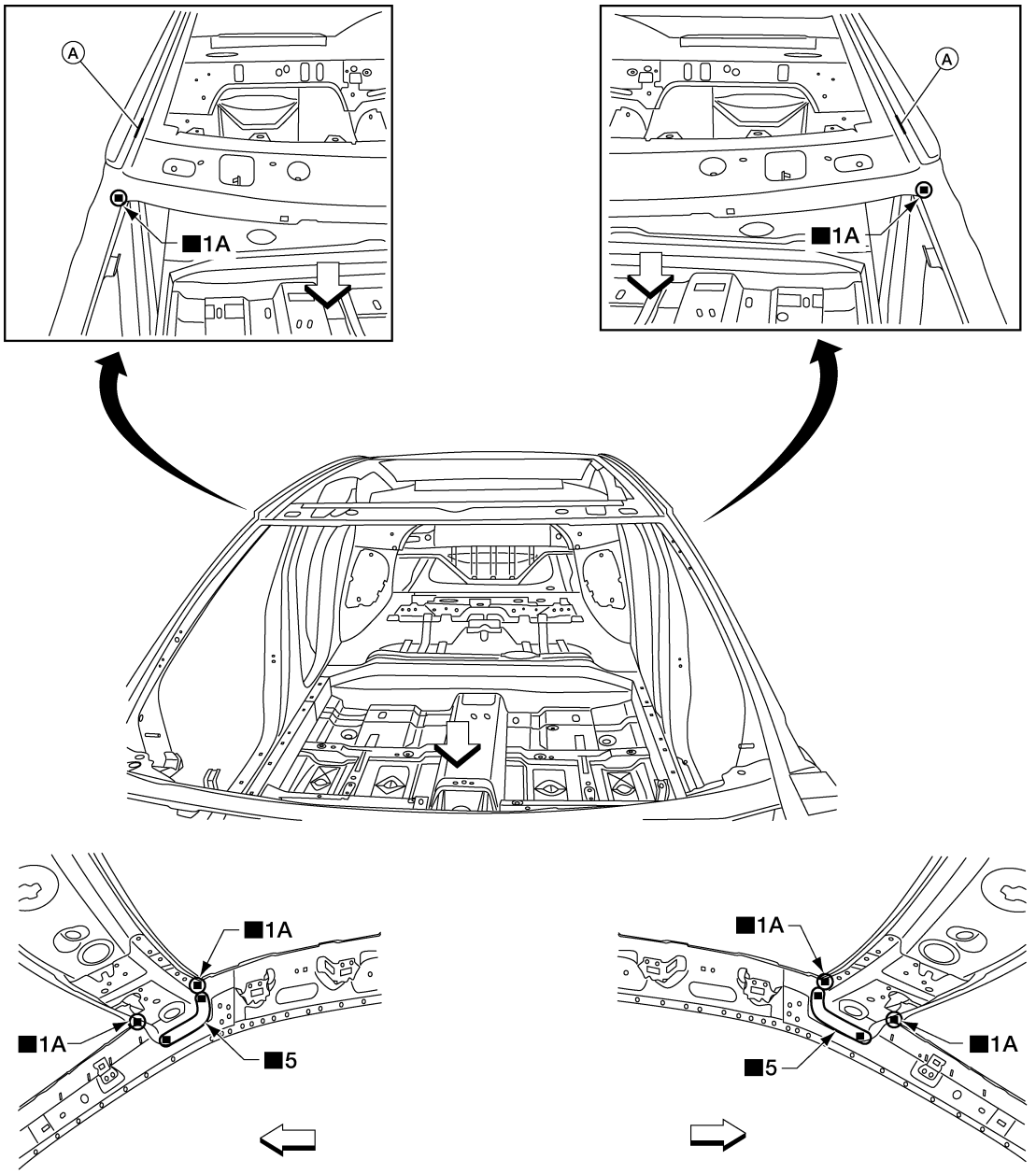
A. 25.4 mm (1.0 in)

⇦ Front

Moonroof

INFOID:0000000011989591

Front and Rear Roof Rail Assembly



AWKIA3611ZZ

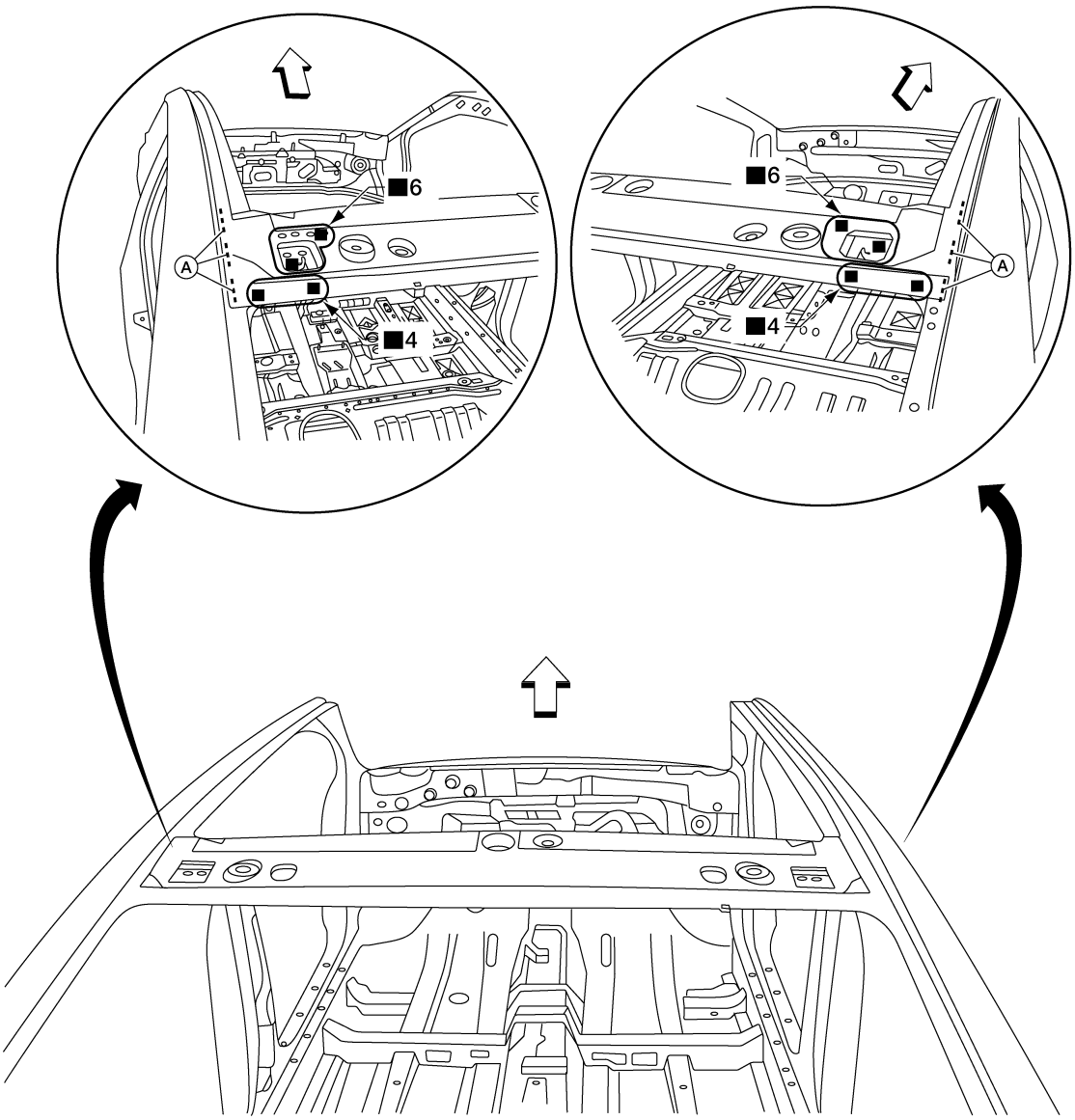
Replacement parts

- Front roof rail assembly, moonroof shown

A. Mig weld

⇦ Front

Rear Roof Rail Assembly



ALKIA3907ZZ

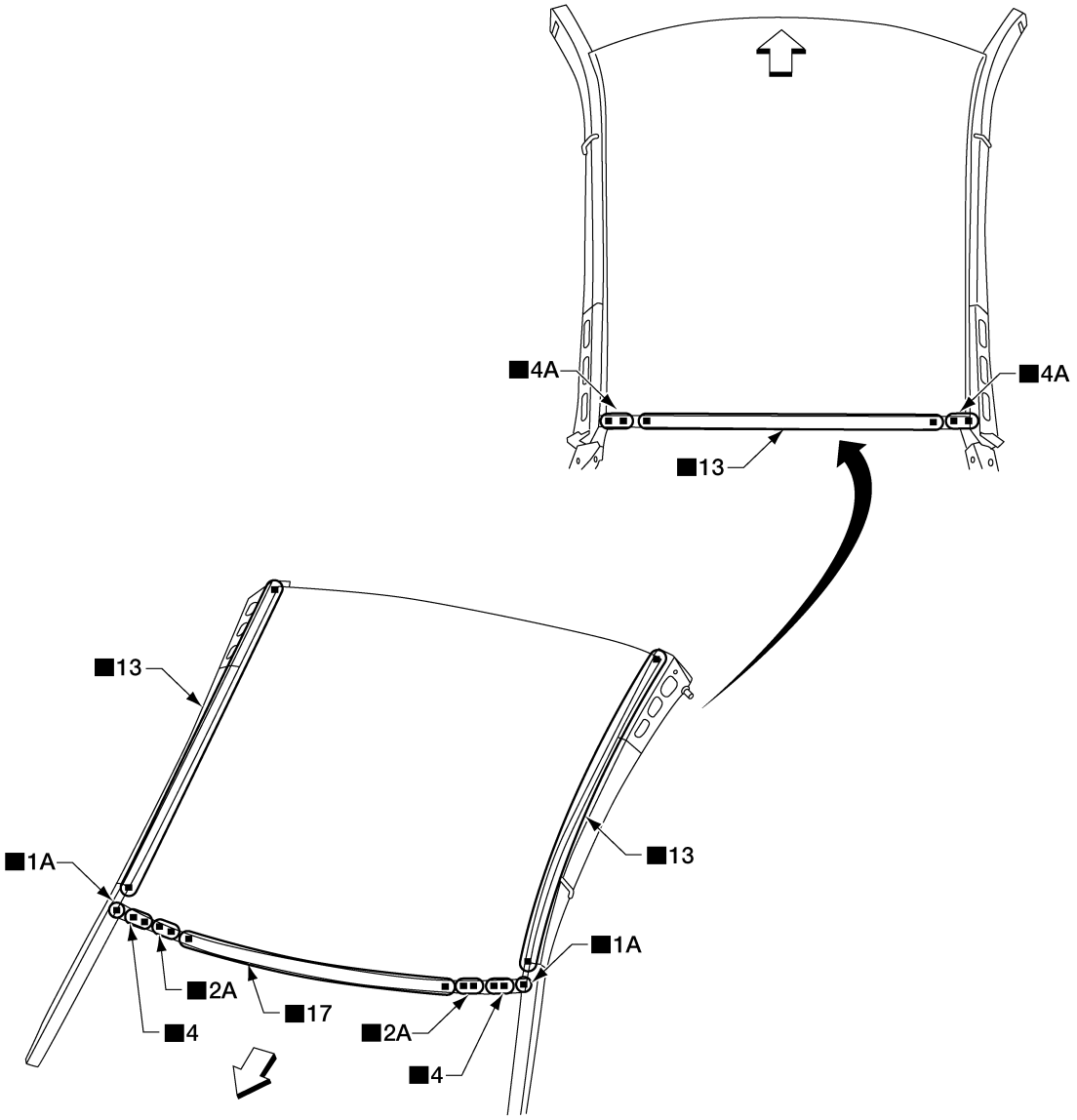
Replacement parts

- Rear roof rail assembly, moonroof shown A. Mig weld

⇦ Front

Standard Roof

INFOID:0000000012141613



AWKIA3613ZZ

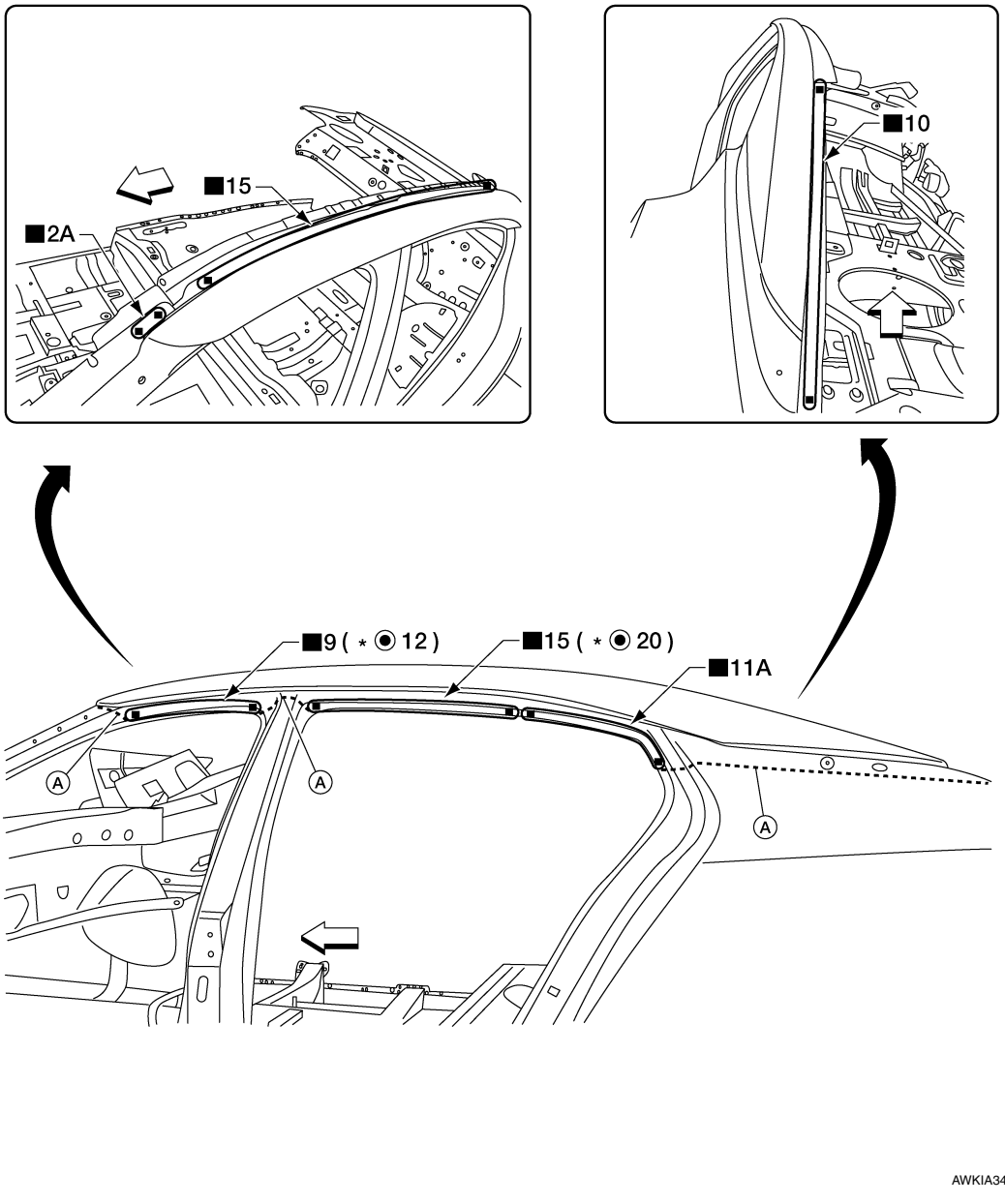
Replacement parts

- Standard Roof panel and bows

⇦ Front

Roof Side Rail Reinforcement

INFOID:0000000012140879



AWKIA3499ZZ

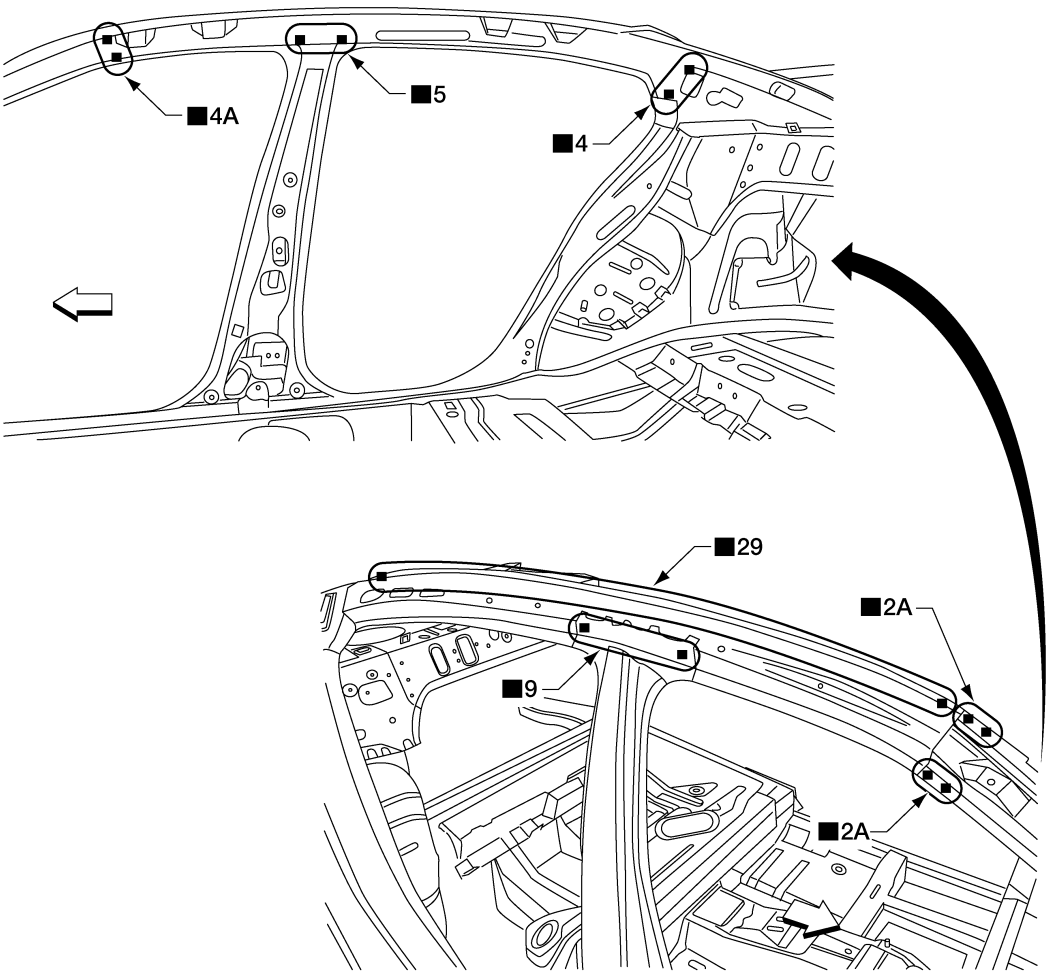
Replacement parts

- Body Side Outer Upper

A. Sectioning Line

⇦ Front

∗ For spot welding of steel plate of strength 980 MPa, observe the indicated welding conditions. Refer to BRM-9, "Welding of Ultra High Strength Steel".



ALKIA3970ZZ

Replacement parts

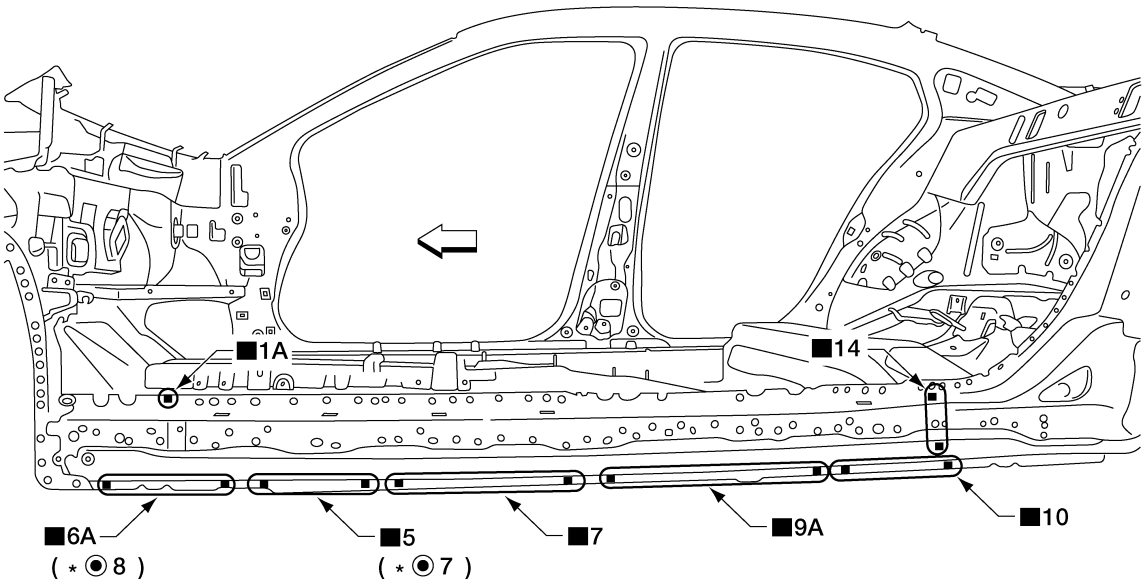
- Roof side reinforcement

⇦ Front

Sill Outer Reinforcement

INFOID:0000000011989586

Work after the front pillar lower hinge brace and the center pillar reinforcement have been removed.



AWKIA3618ZZ

Replacement parts

- Sill outer reinforcement

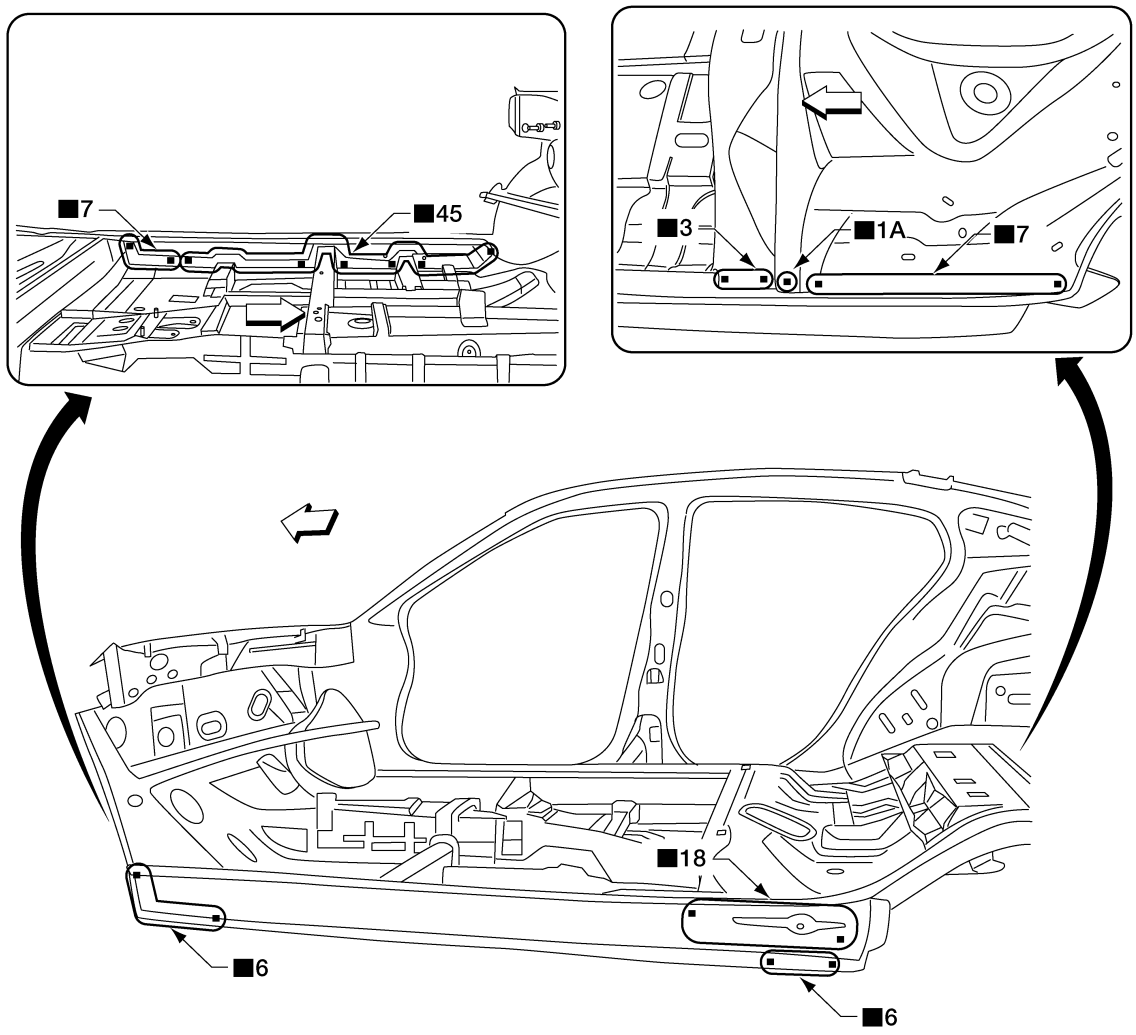
⇦ Front

⁎ For spot welding of steel plate of strength 980 MPa, observe the indicated welding conditions. Refer to BRM-9, "Welding of Ultra High Strength Steel".

Sill Inner

INFOID:0000000012140877

Work after the front pillar reinforcement, center pillar reinforcement, and rear fender have been removed.



AWKIA3617ZZ

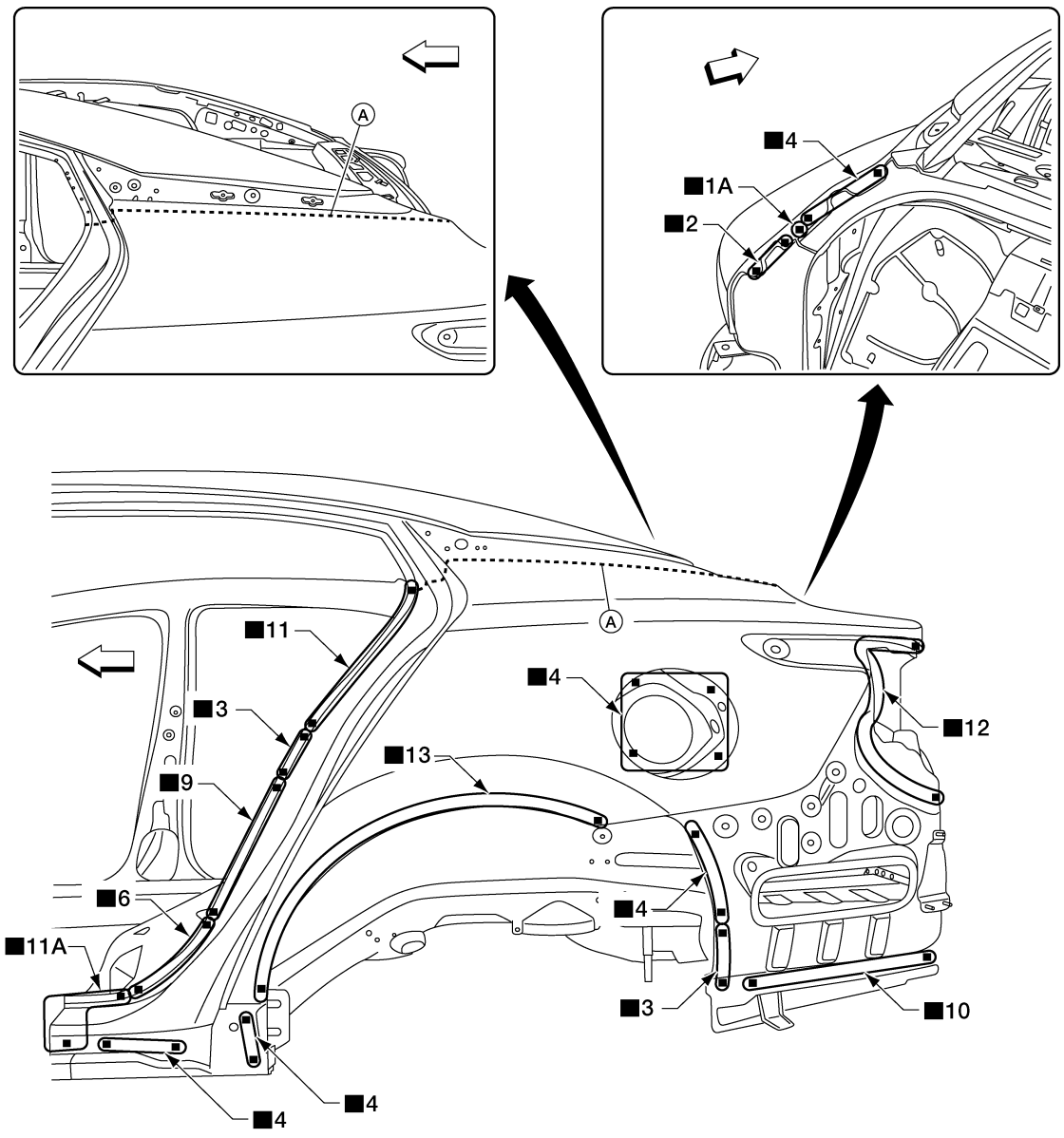
Change parts

- Inner sill

⇦ Front

Rear Fender

INFOID:0000000011989587



AWKIA3616ZZ

Replacement parts

- Rear fender

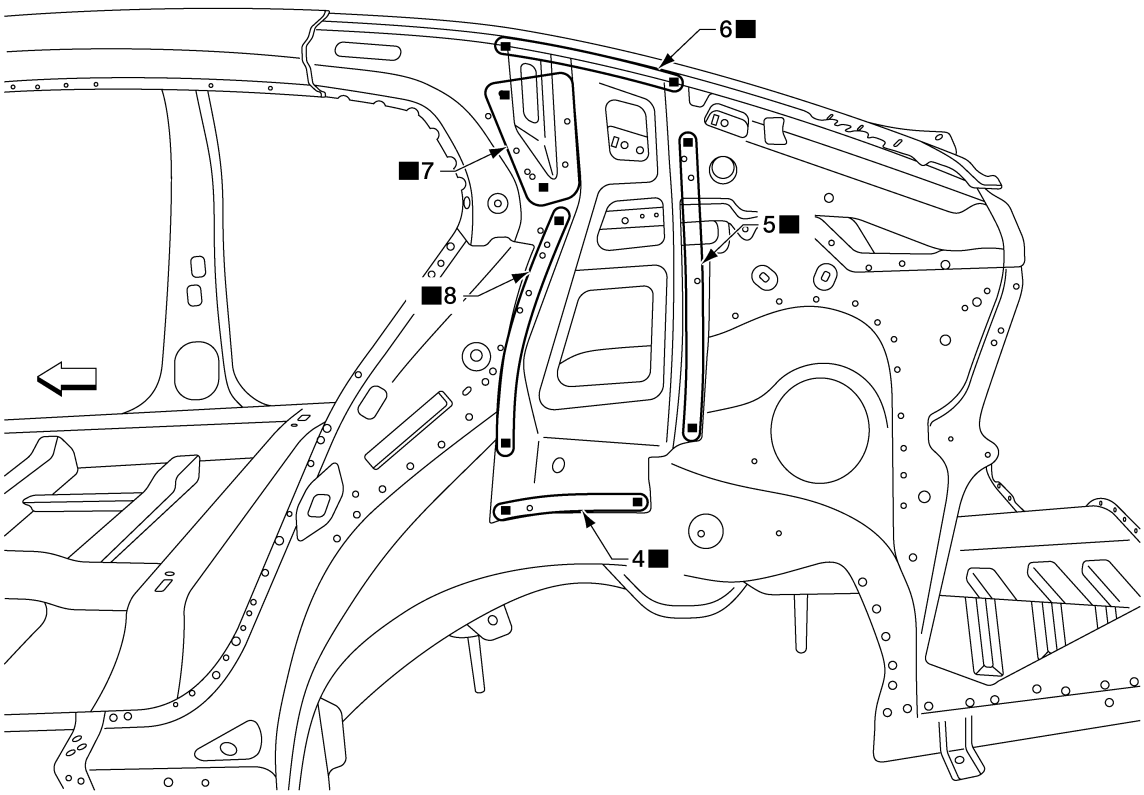
A. Sectioning cut line

⇦ Front

Rear Wheel House Outer Assembly

INFOID:0000000011989588

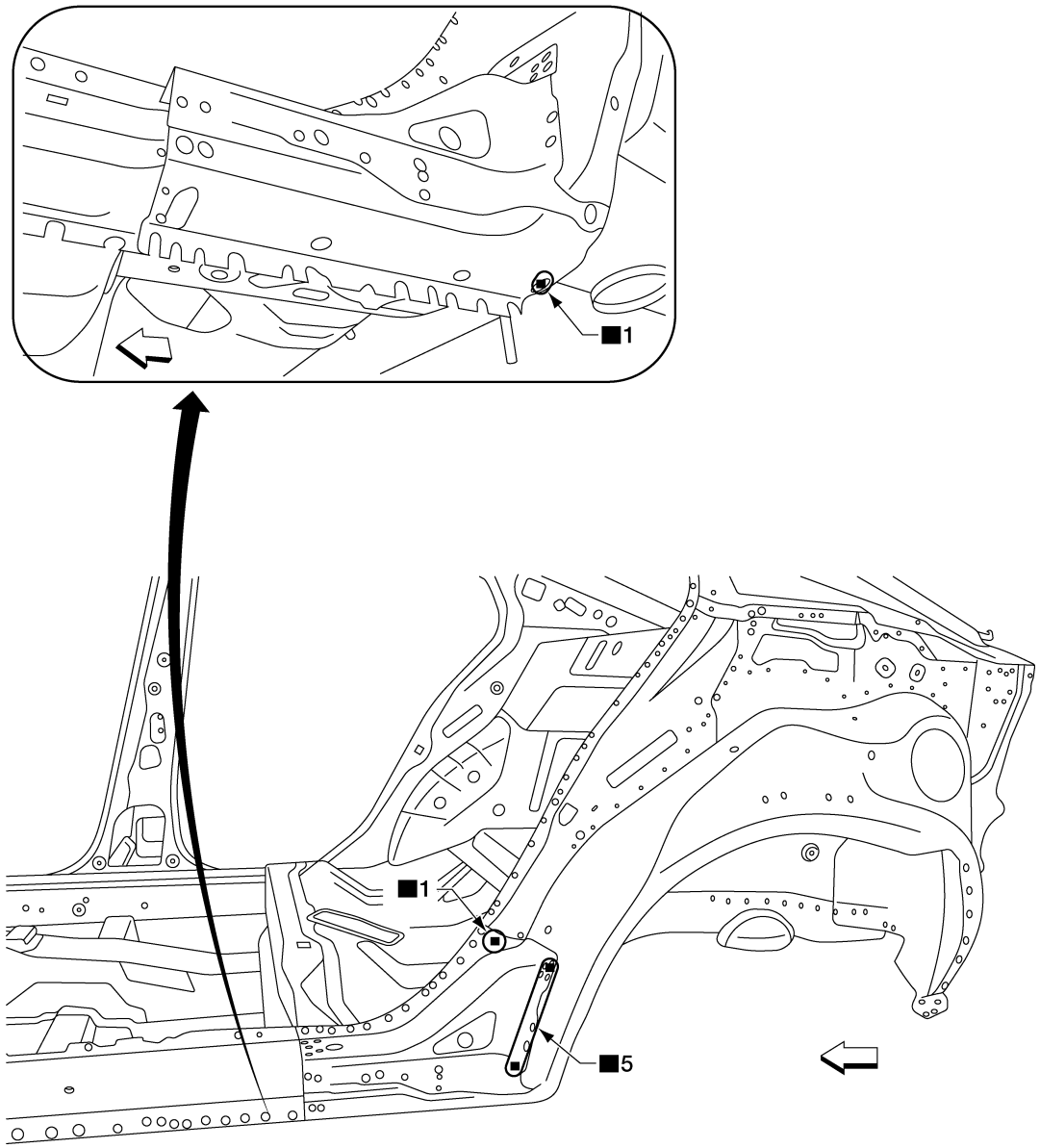
• Work after rear body side outer has been removed.



AWKIA3615ZZ

Replacement parts

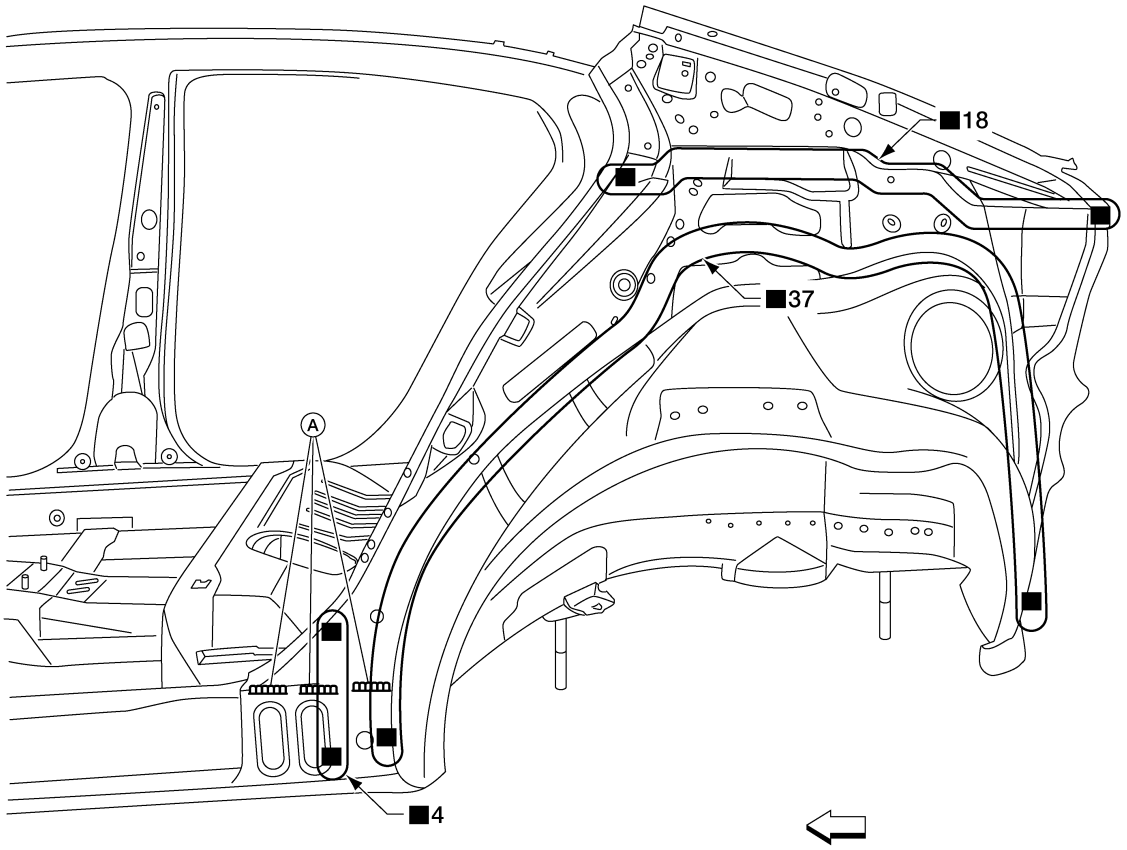
- Rear Outer Wheelhouse Reinforcement ⇦ Front



AWKIA3614ZZ

Replacement parts

- Sill Reinforcement Extension ⇦ Front



AWKIA3610ZZ

Replacement parts

- Rear Outer Wheel House

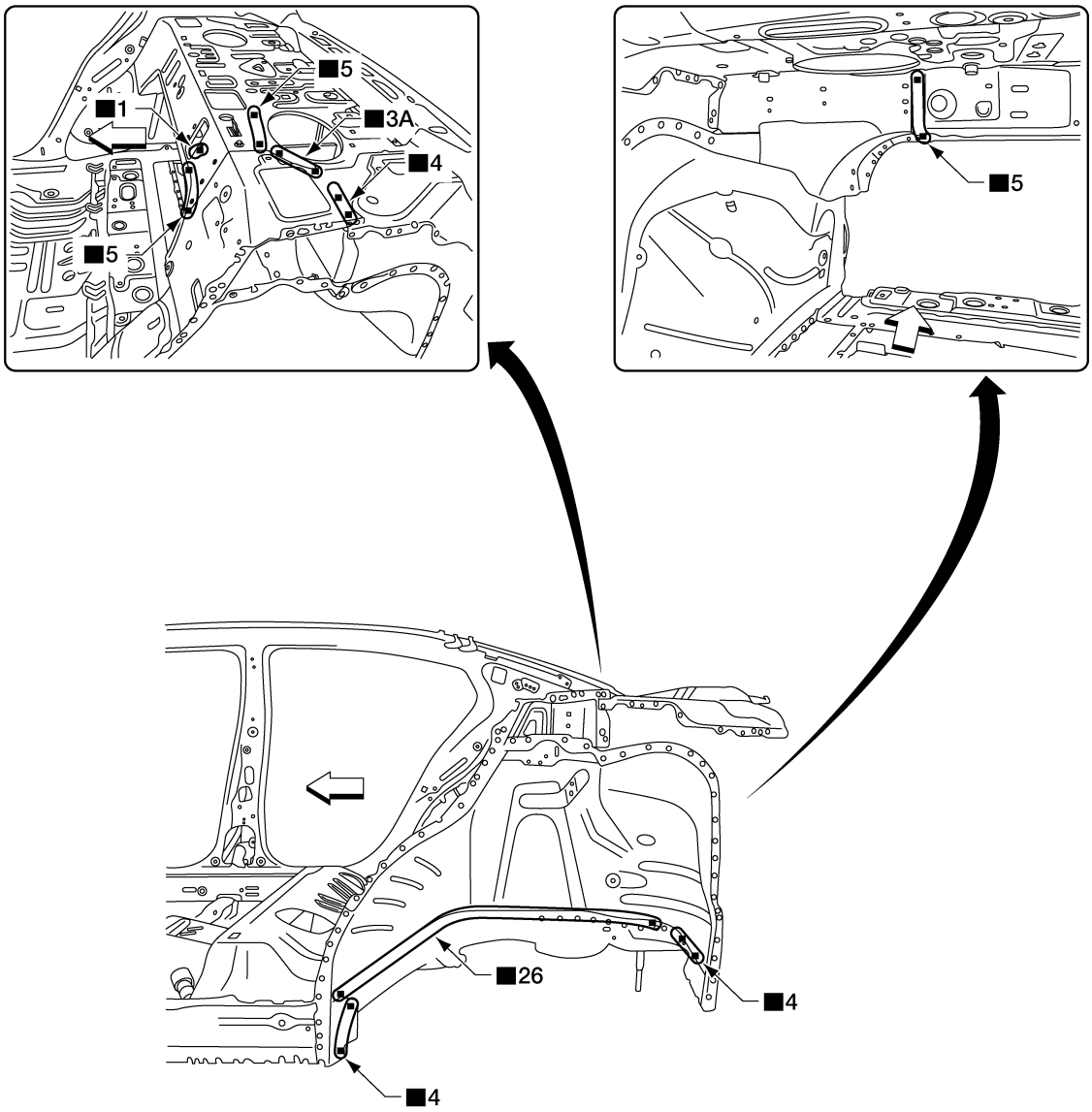
A. Mig welds

⇦ Front

Rear Wheel House Inner Assembly

INFOID:0000000012140878

• Work after rear fender and rear outer wheel house have been removed.



AWKIA3608ZZ

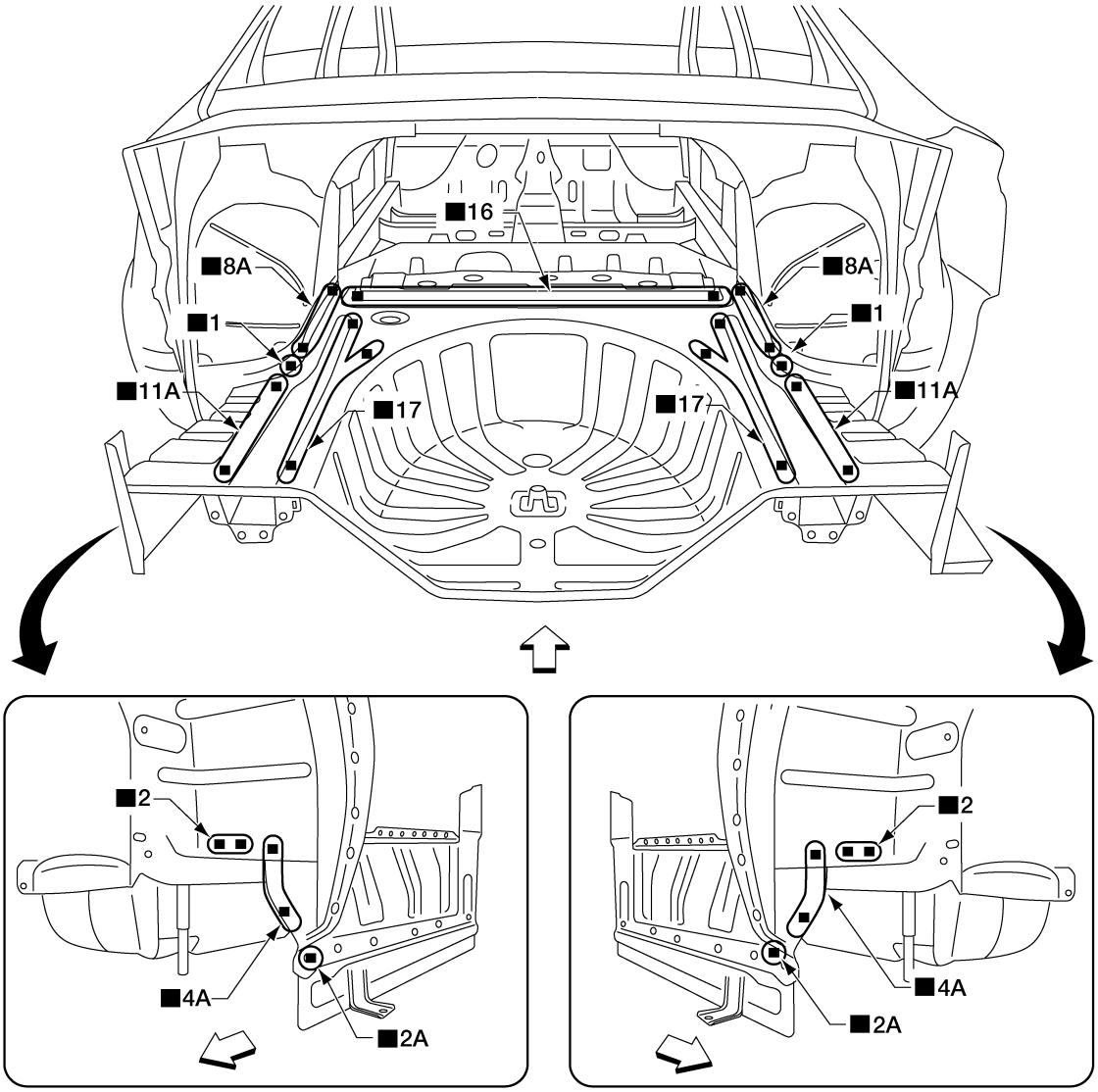
Replacement parts

- Rear inner wheel house assembly ⇦ Front

Rear Floor Rear

INFOID:0000000011989589

• Work after rear panel assembly has been removed.



AWKIA3606ZZ

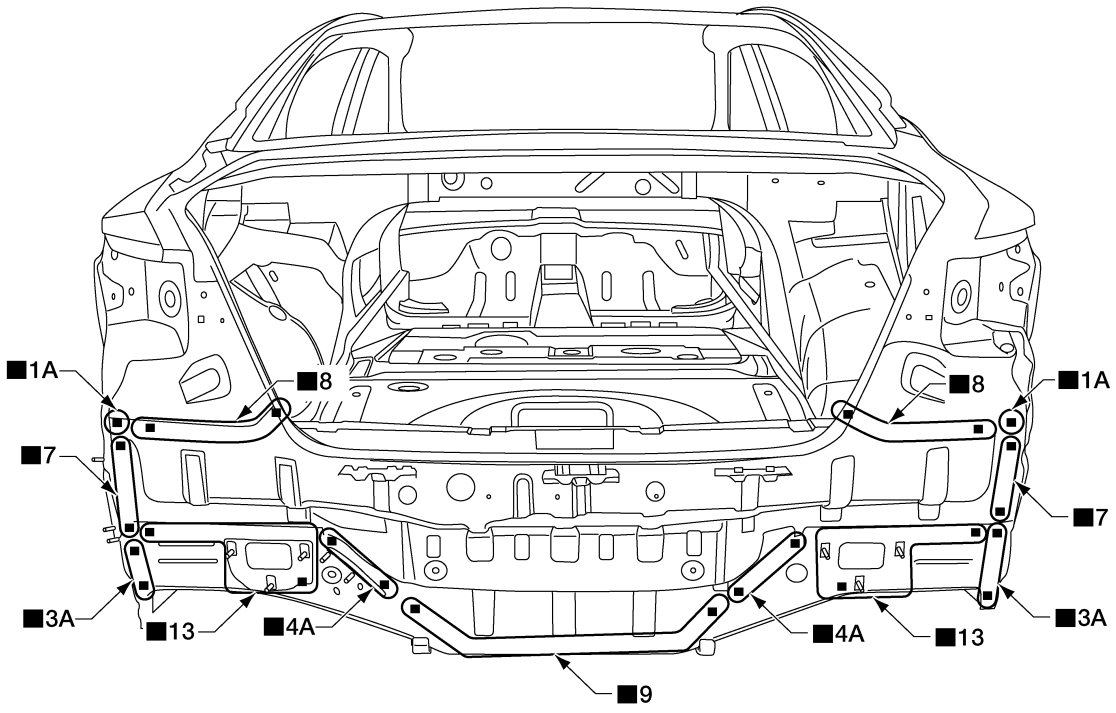
Replacement parts

- Rear floor rear (Partial Replacement)
- Rear floor side (LH/RH)

⇦ Front

Rear Panel Assembly

INFOID:0000000011989590



ALKIA3906ZZ

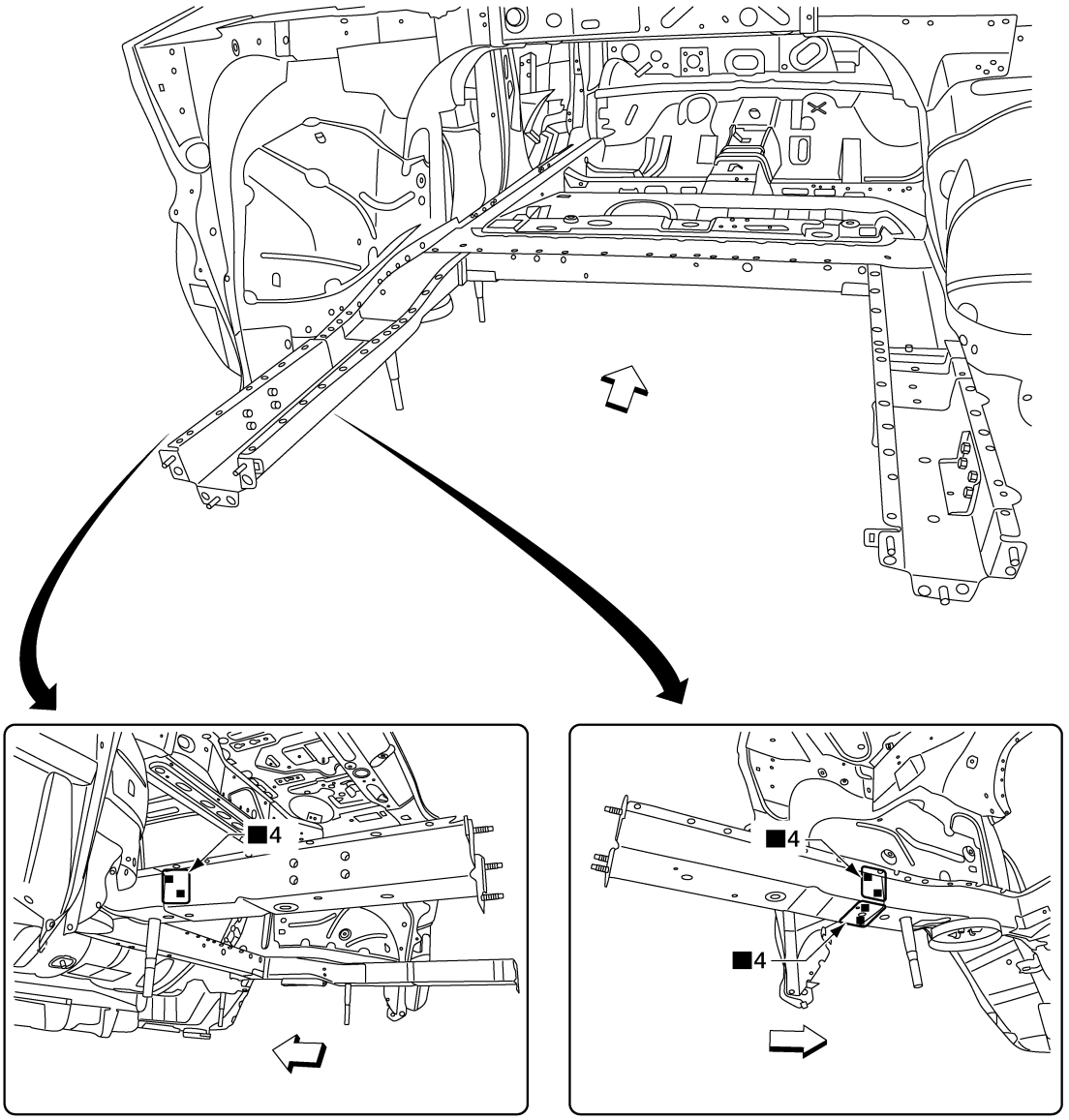
Replacement parts

- Rear panel assembly

Rear Side Member Extension

INFOID:0000000011989592

• Work after rear panel assembly has been removed.



ALKIA3953ZZ

Replacement parts

- Rear side member extension ⇦ Front

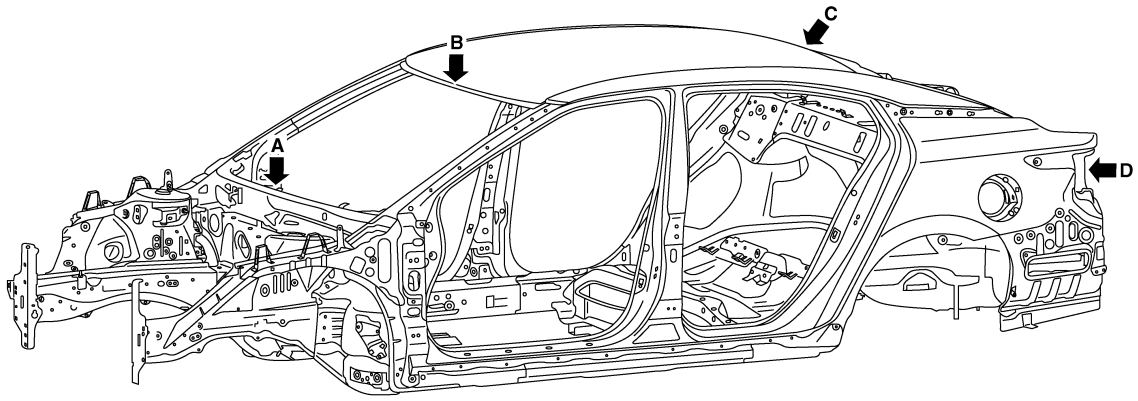
SERVICE DATA AND SPECIFICATIONS (SDS)

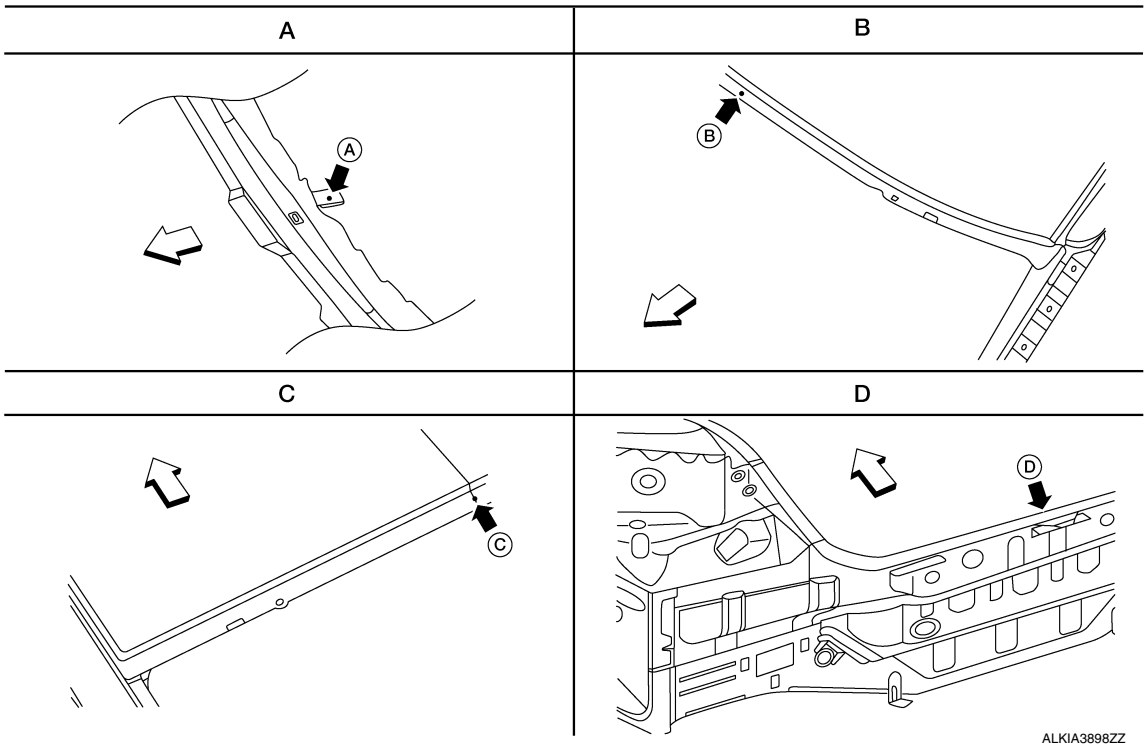
BODY ALIGNMENT

Body Center Marks

INFOID:0000000011989593

A mark is placed on each part of the body to indicate the vehicle center. When repairing the vehicle frame (members, pillars, etc.) damaged in an accident the most accurate and effective repair will be achieved by using these marks together with body alignment specifications.





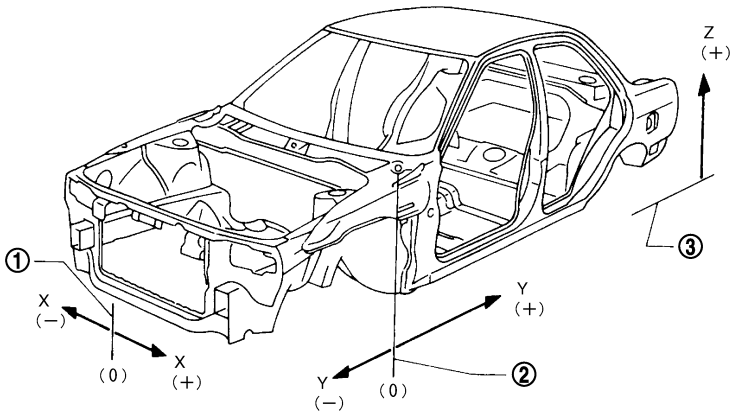
Front

Points	Portion	Marks
A	Center cowl top	Hole
B	Front roof	Embossment
C	Rear roof	Embossment
D	Rear panel	Notch

Description

INFOID:0000000011989594

- 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

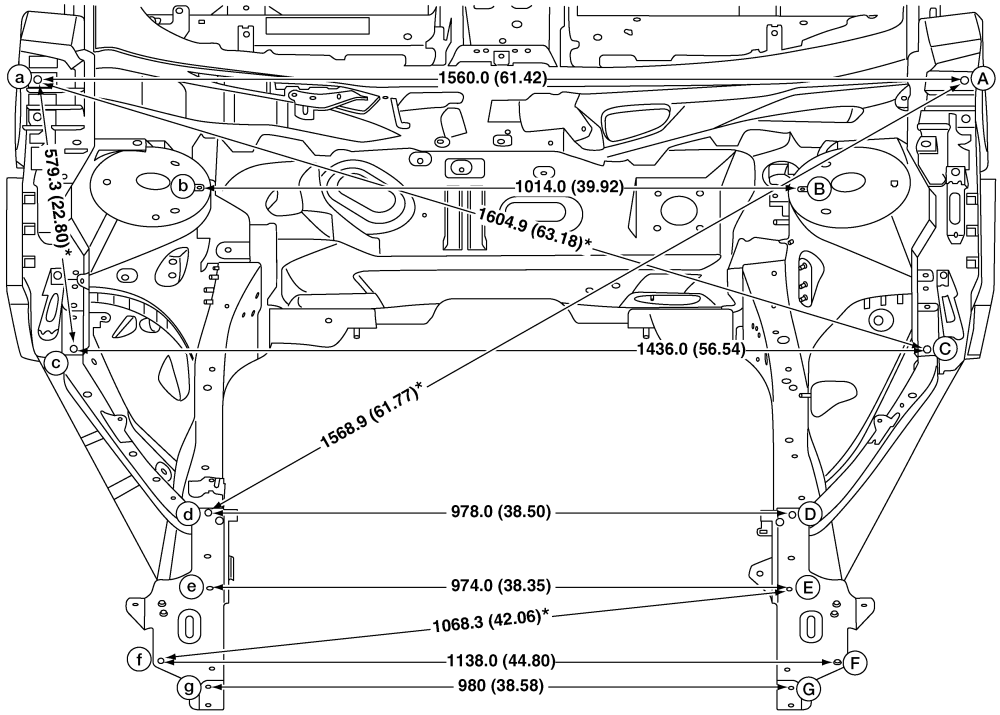
1. Vehicle center
2. Front axle center
3. Imaginary base line

Engine Compartment

INFOID:0000000011989595

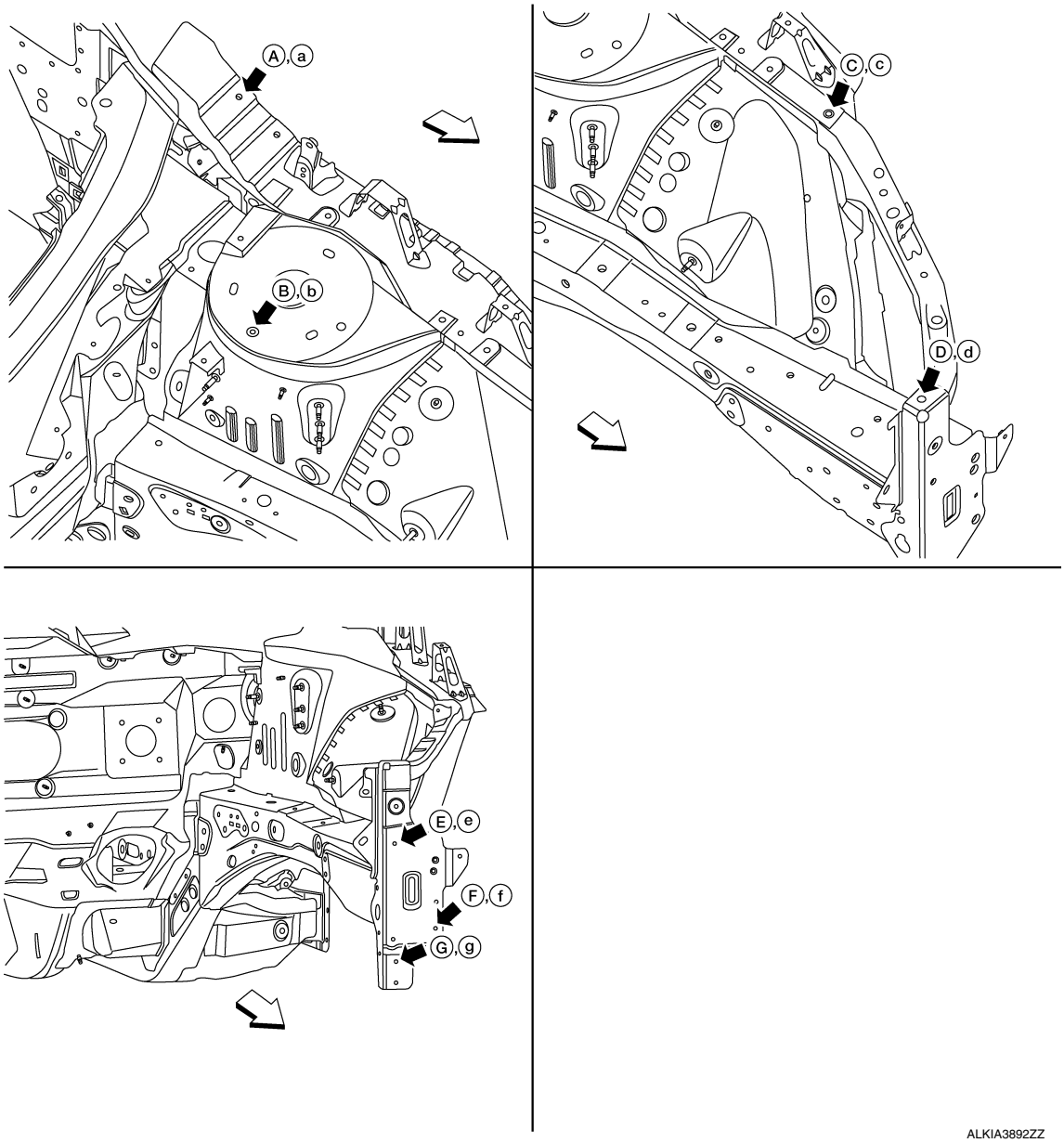
MEASUREMENT

Dimensions marked with ″*″ indicate symmetrically identical dimensions on both the RH and LH sides of the vehicle.



AWKIA3550ZZ

MEASUREMENT POINTS



ALKIA3892ZZ

⇦ Front

Unit: mm (in)

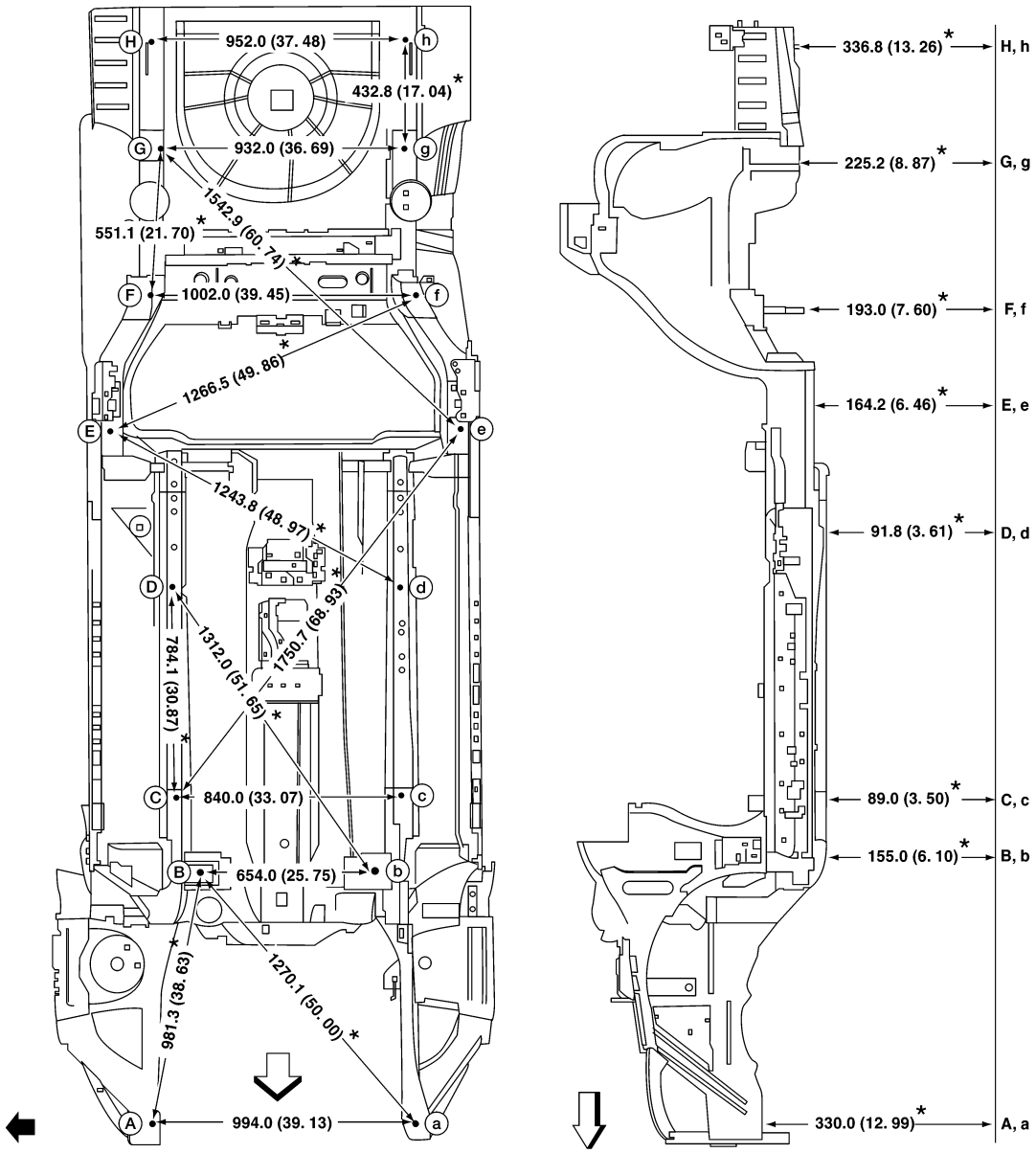
Point	Description
A, a	Hood hinge rear hole 11.0 (0.43)
B, b	Front spring support hole 9.0 (0.35)
C, c	Upper radiator support top hole 13.0 (0.51)
D, d	Upper radiator tie bar hole 13.0 (0.51)
E, e	Bumper reinforcement upper inner hole 9.0 (0.35)
F, f	Bumper reinforcement lower outer hole 14.0 (0.55)
G, g	Lower radiator tie bar hole 14.0 (0.55)

Underbody

INFOID:0000000011989596

MEASUREMENT

The following figure shows a bottom view and a side view of the vehicle.



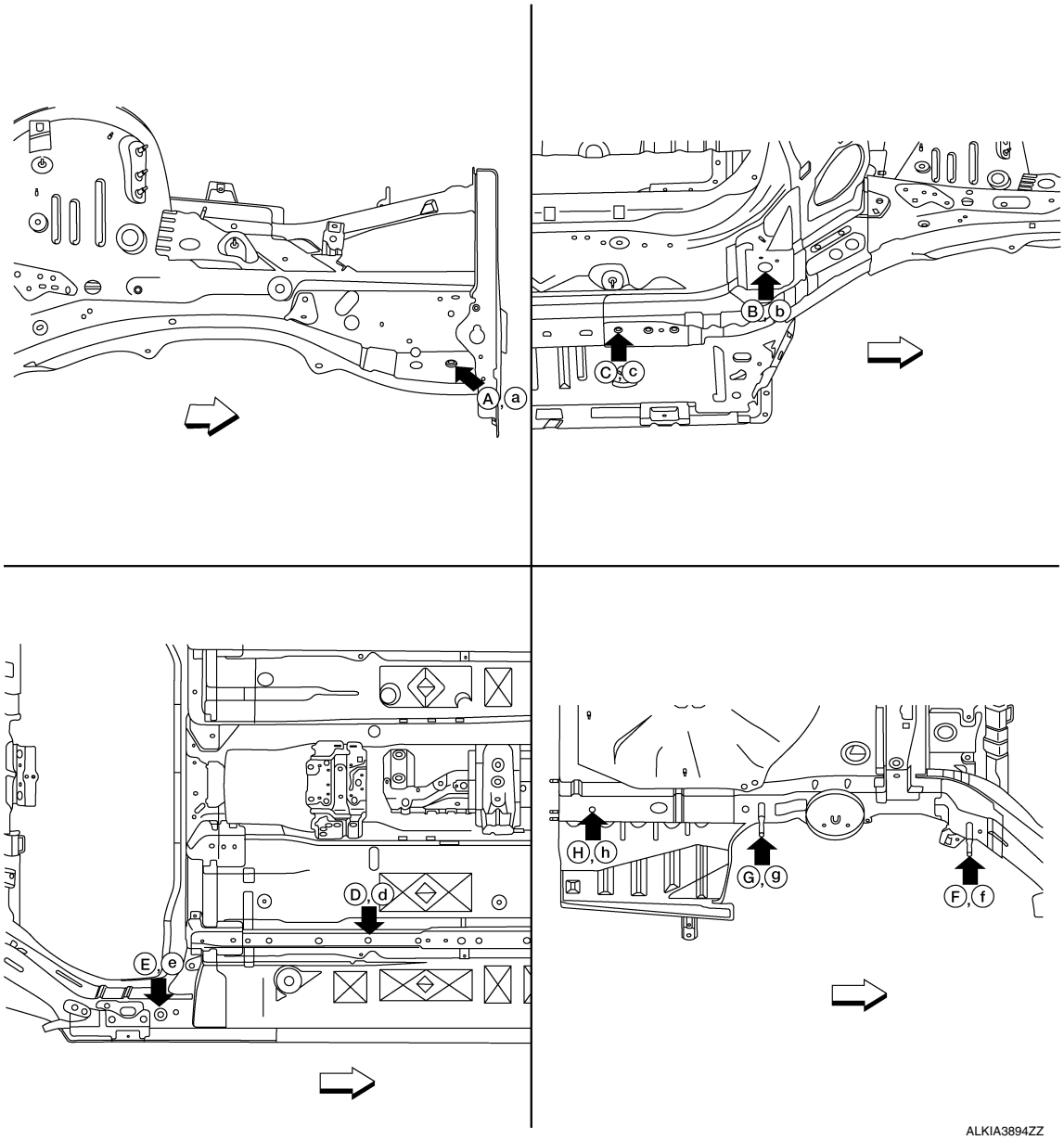
AWKIA3545ZZ

Unit: mm (in).

⇦ Front ⬅ Left side of vehicle

Dimensions marked with "*" indicate symmetrically identical dimensions on both the LH and RH sides of the vehicle.

MEASUREMENT POINTS



ALKIA3894ZZ

⇦ Front

Unit: mm (in)

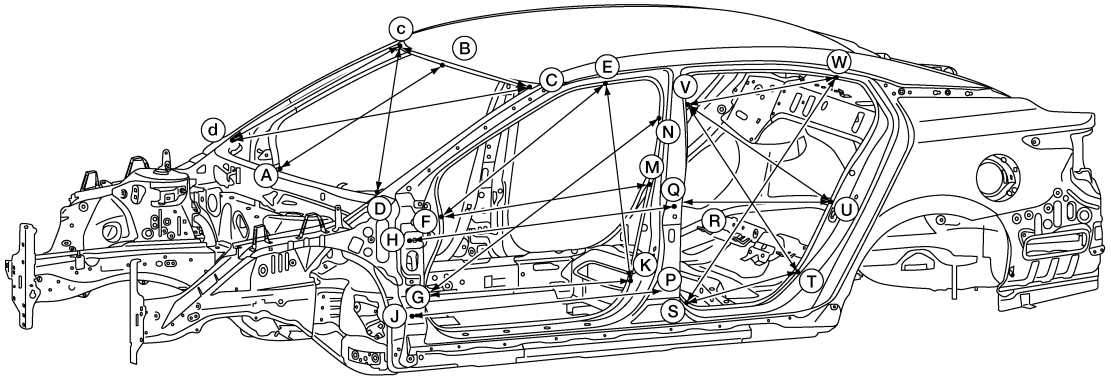
Points	Coordinates			Remarks
	X	Y	Z	
A, a	-555.5 (-21.87)	±497.0 (±19.57)	130.0 (5.12)	Hole 17.0 (0.67)
B, b	395.0 (15.55)	-327.0 (-12.87)	-45.0 (-1.77)	Hole 28.5 (1.12)
C, c	680.0 (26.77)	±420.0 (±16.54)	-111.0 (-4.37)	Hole 13.0 (0.51)
D, d	1464.0 (±20.23)	±431.0 (±16.97)	-108.24 (-4.26)	Hole 15.0 (0.59)
E, e	2055.0 (±80.91)	±661.0 (±26.02)	-35.8 (-1.41)	Hole 16.0 (0.63)
F, f	2558.0 (±100.71)	±501.0 (±19.72)	-7.0 (-0.28)	Bolt tip
G, g	122.32 (122.32)	±466.0 (±18.35)	25.2 (0.99)	Bolt tip
H,h	3525.0 (138.78)	±476.0 (18.74)	134.8 (5.31)	Oblong hole 18.0x16.0 (0.71x0.63)

Passenger Compartment

INFOID:0000000011989597

MEASUREMENT

Dimensions marked with "*" indicate symmetrically identical dimensions on both the LH and RH side of the vehicle.

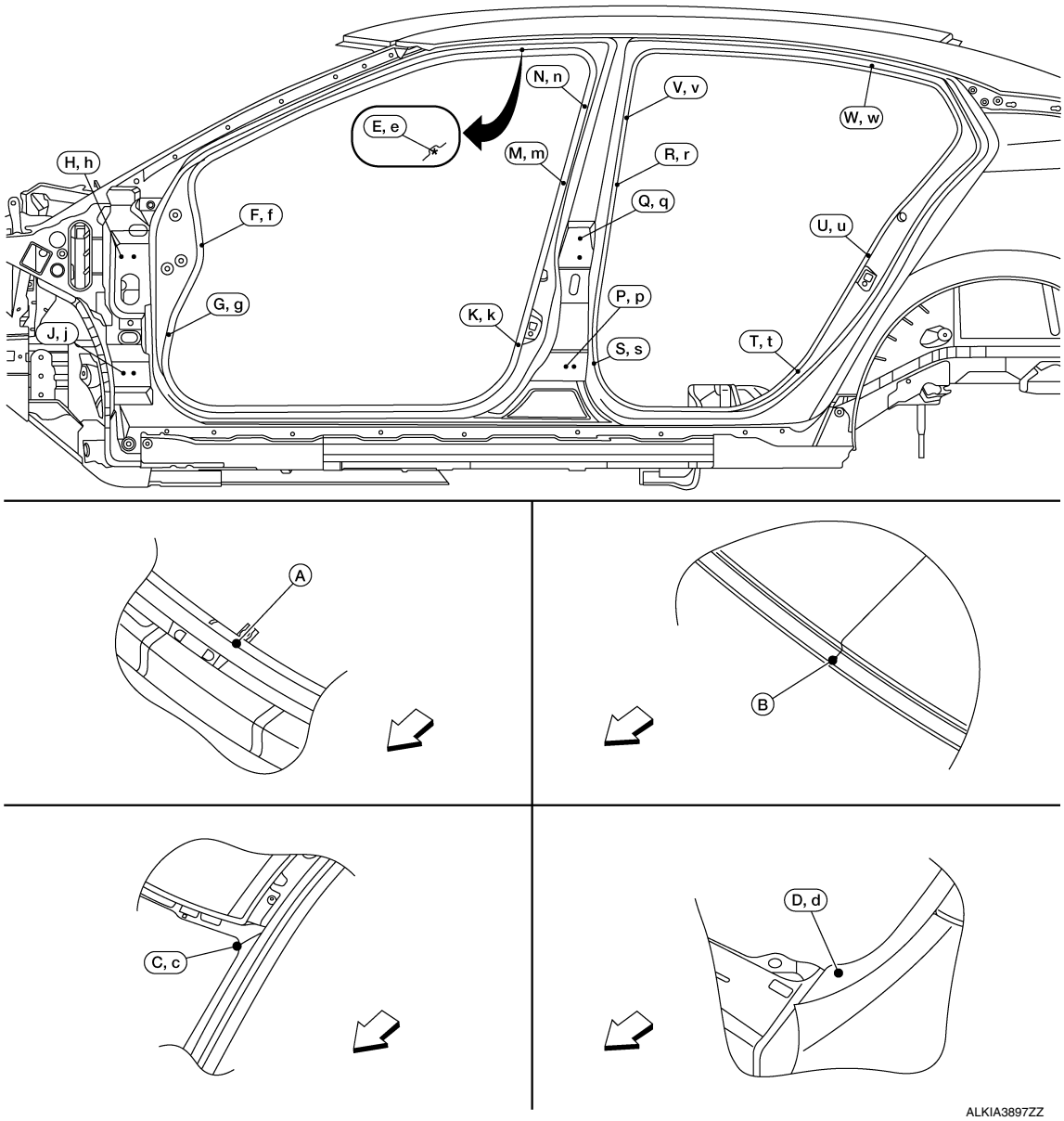


ALKIA3895ZZ

Unit: mm (in)

Coordinates	Measurement	Coordinates	Measurement
A-B	829.2 (32.65)	H-P*	1198.0 (47.17)
D-d*	1366.4 (53.80)	K-N*	582.2 (22.92)
C-c*	1182.0 (46.54)	E-F*	934.5 (36.79)
C-d*	1503.0 (59.17)	E-G*	1163.2 (45.80)
C-A*	1081.6 (42.58)	E-K*	720.1 (28.35)
C-D*	802.4 (31.59)	R-U*	694.9 (27.36)
F-K*	868.9 (34.21)	R-V*	897.3 (35.33)
F-M*	897.3 (35.33)	R-S*	317.7 (12.51)
G-Q*	1152.0 (45.35)	R-T*	569.6 (22.43)
G-P*	1050.1 (41.34)	S-V*	681.8 (26.84)
G-K*	932.3 (36.70)	S-T*	453.3 (17.85)
G-M*	1016.7 (40.03)	S-W*	1107.6 (43.61)
G-N*	1253.4 (49.35)	T-U*	398.7 (15.70)
G-E*	1163.2 (45.80)	T-V*	903.2 (35.56)
H-Q*	1232.2 (48.51)	U-V*	549.1 (21.62)
H-J*	309.2 (12.17)	V-W*	720.4 (28.36)

MEASUREMENT POINTS



⇦ Front

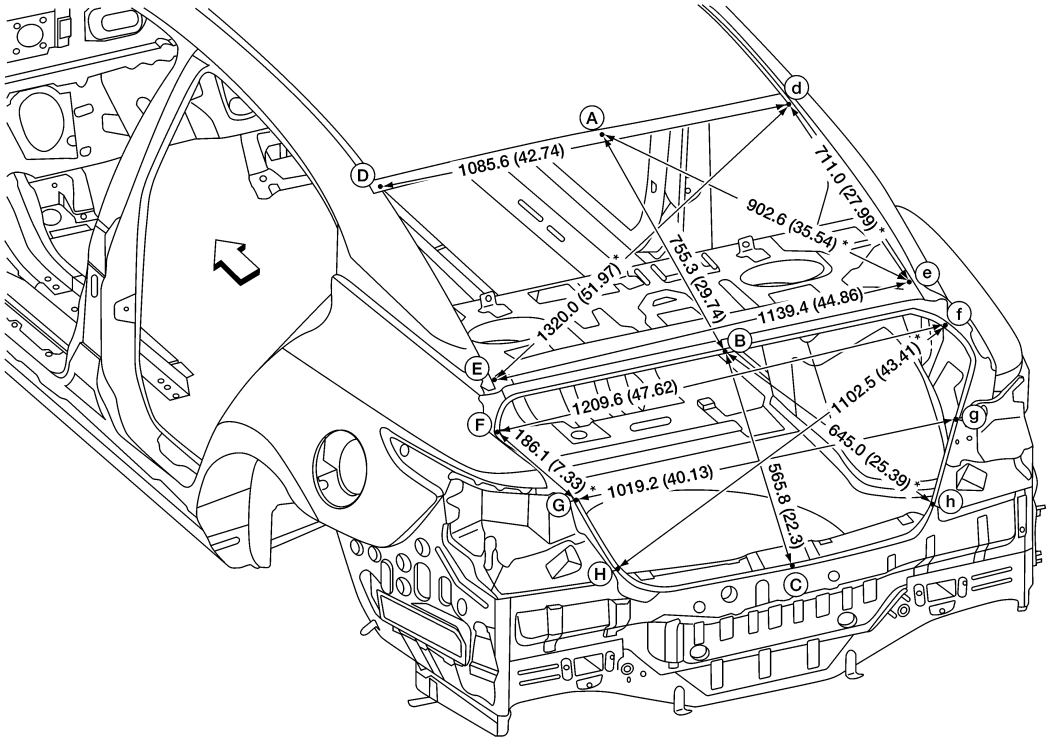
Point	Description	Point	Description
A	Center of center cowl top hole	E,e F,f, G,g	Front pillar indent
B	Roof flange center positioning mark	K,k M,m N,n S,s R,r V,v	Center pillar indent
C,c	Outer side body joggle corner	H,h J,j P,p Q,q	Door hinge installing hole center
D,d	Body side outer positioning mark	T,t U,u W,w	Rear fender indent

Rear Body

INFOID:0000000011989598

MEASUREMENT

Dimensions marked with "*" indicate symmetrically identical dimensions on both the LH and RH side of the vehicle.

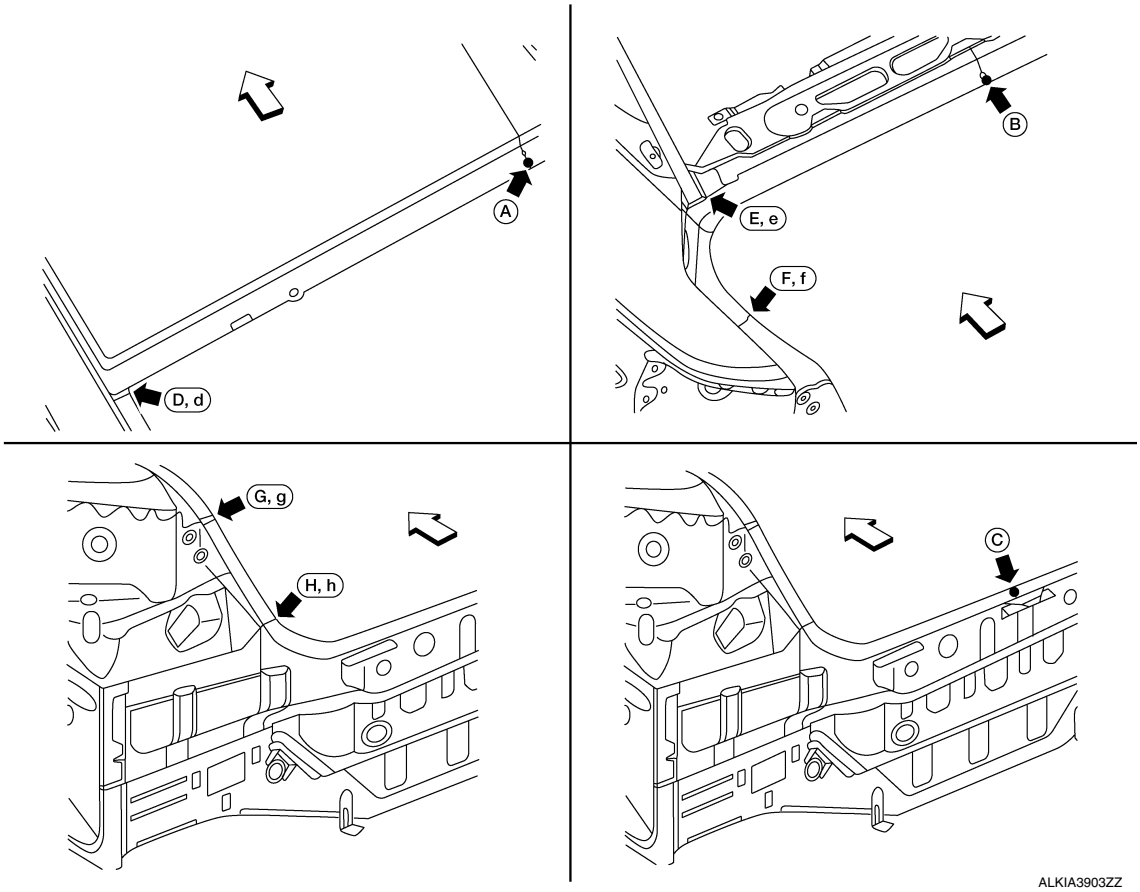


AWKIA3546ZZ

Unit: mm (in)

⇦ Front

MEASUREMENT POINTS



⇦ Front

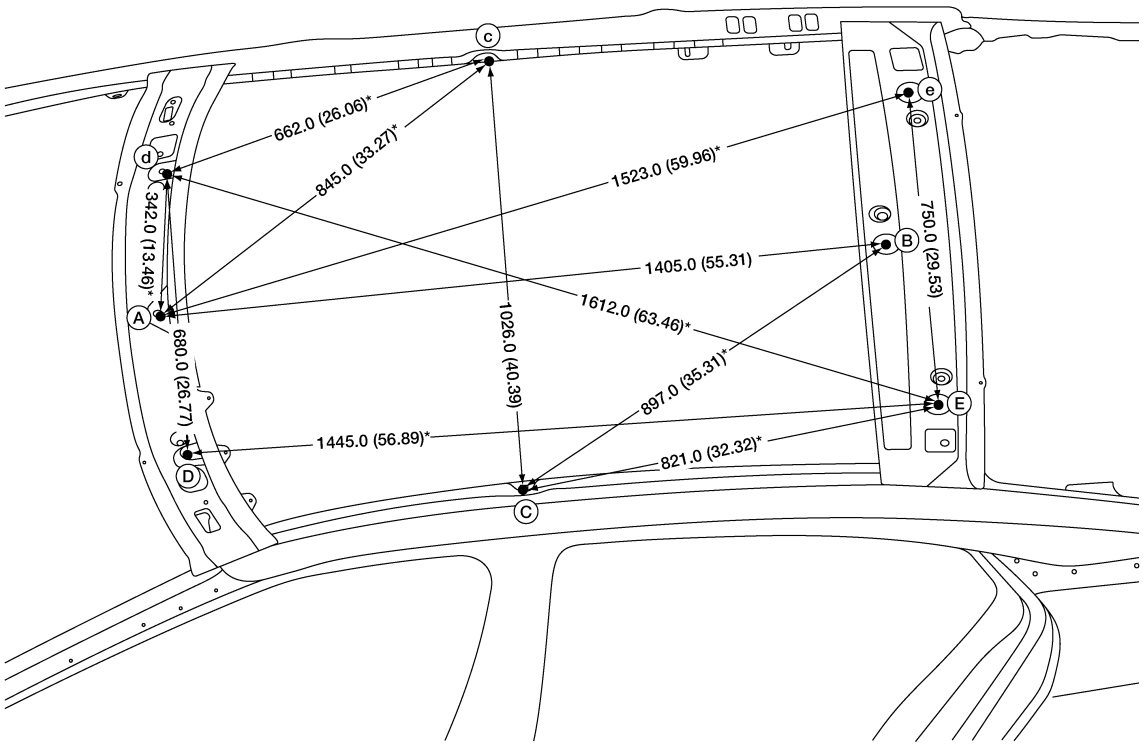
Point	Description	Point	Description
A	Roof flange end of center positioning mark	B	Waist rear flange end
C	Rear panel upper notch for alignment	D,d	Body side outer joggle corner
E,e	Body side outer notch	F,f	Body side outer joggle corner
G,g	Rear combination lamp joggle corner	H,h	Base rear combination lamp joggle corner

Moonroof

INFOID:0000000012250210

MEASUREMENT

Dimensions marked with "*" indicate symmetrically identical dimensions on both the LH and RH side of the vehicle.



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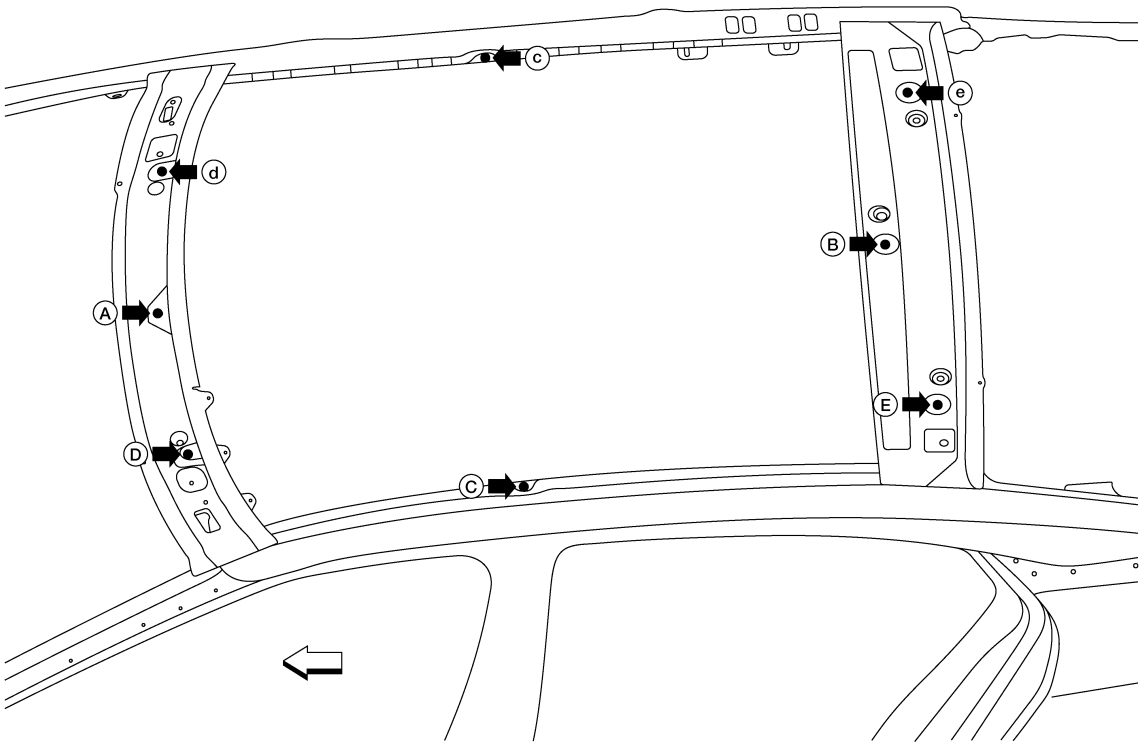
MEASUREMENT POINTS



ALKIA4038ZZ

⇦ Front

Unit: mm (in)

Point	Description	Point	Description
A	Roof rail front center locator hole 10 (0.4)	B	Roof rail rear center locator hole 50 (2.0)
C, c	Roof side outer reinforcement oblong locator hole 18 x 13 (0.7 x 0.5)	D, d	Roof rail front side locator hole 12 (0.5)
E, e	Roof rail rear side locator hole 12 (0.5)		