

SECTION **BRM**
 BODY REPAIR

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

CONTENTS

FEATURES OF NEW MODEL	2	BODY ALIGNMENT	18
BODY EXTERIOR PAINT COLOR	2	Body Center Marks	18
Body Exterior Paint Color	2	Panel Parts Matching Marks	19
PRECAUTION	3	Description	19
PRECAUTIONS	3	Engine Compartment	21
Precautions For High-Voltage System	3	Underbody	23
HANDLING PRECAUTIONS FOR PLASTICS	4	Passenger Compartment	25
Precautions For Plastics	4	Rear Body	27
ON-VEHICLE REPAIR	7	PRECAUTIONS IN REPAIRING HIGH	
BODY COMPONENT PARTS	7	STRENGTH STEEL	29
Underbody Component Parts	7	High Strength Steel (HSS)	29
Body Component Parts	9	REPLACEMENT OPERATIONS	32
CORROSION PROTECTION	11	Description	32
Description	11	Hoodledge	35
Anti-Corrosive Wax	11	Front Side Member	36
Undercoating	12	Front Side Member (Partial Replacement)	37
Stone Guard Coat	13	Front Pillar	37
BODY SEALING	14	Dash Side	40
Description	14	Center Pillar	42
BODY CONSTRUCTION	17	Outer Sill	44
Body Construction	17	Rear Fender	45
		Rear Panel	46
		Rear Floor Rear	46
		Rear Side Member Extension	48
		Foam Repair	49

BRM

BODY EXTERIOR PAINT COLOR

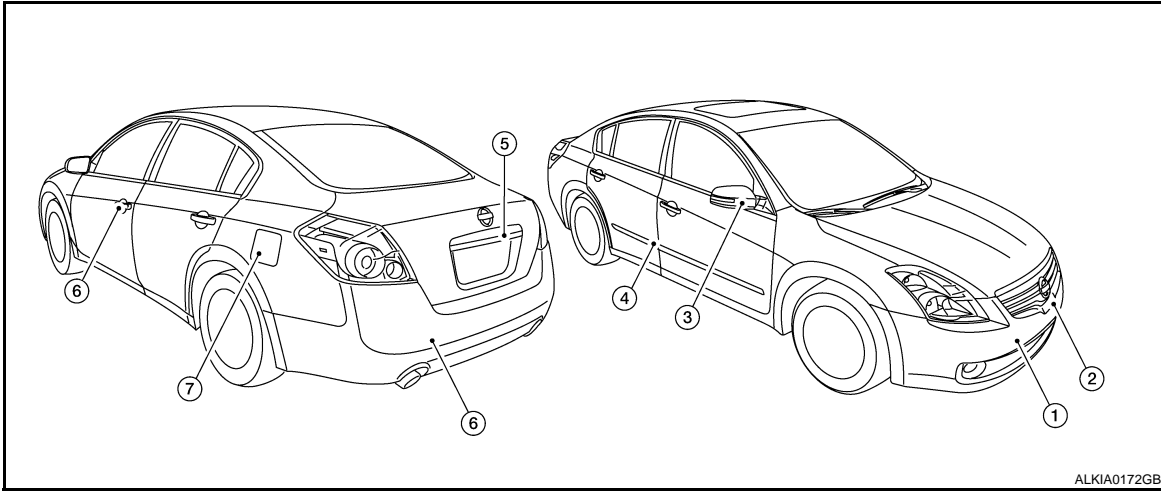
< FEATURES OF NEW MODEL >

FEATURES OF NEW MODEL

BODY EXTERIOR PAINT COLOR

Body Exterior Paint Color

INFOID:000000001502370



Component		Color code	A15	BW9	C43	J40	K12	K50	KH3	QX3	W40	
		Description	Sono- ma Sunset	Majes- tic Blue	Pebble Beach	Metallic Jade	Radi- ant Sil- ver	Dark- Slate	Super Black	Winter Frost	Preci- sion Grey	
		Paint type	PM	PM	M	PM	M	M	2S	3P	M	
		Hard clear coat	×	×	×	-	×	-	-	-	-	
1	Bumper fas- cia		Body color	A15	BW9	C43	J40	K12	K50	KH3	QX3	BWV2
2	Front grille		Chromium- plate + Smoke clear	Cr + HFM- 09	Cr + HFM- 09	Cr + HFM- 09	Cr + HFM- 09	Cr + HFM- 09	Cr + HFM- 09	Cr + HFM- 09	Cr + HFM- 09	
3	Door outside mirror	Case	Body color	A15	BW9	C43	J40	K12	K50	KH3	QX3	BWV2
4	Body side molding		Body color	A15	BW9	C43	J40	K12	K50	KH3	QX3	BWV2
5	License plate finisher		Body color	A15	BW9	C43	J40	K12	K50	KH3	QX3	BWV2
6	Door outside handle		Chromium- plate	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr
7	Fuel filler lid		Body color	A15	BW9	C43	J40	K12	K50	KH3	QX3	BWV2

M=Metallic, S= Solid, 2S= Solid and Clear, 2P= 2-stage Pearl, 3P= 3-Stage pearl, PM=Pearl metallic, Black is solvent based, all others are water based.

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precautions For High-Voltage System

INFOID:000000001502371

Refer to [GI-24, "Precautions For High-Voltage System"](#).

A

B

C

D

E

F

G

H

I

J

BRM

L

M

N

O

P

HANDLING PRECAUTIONS FOR PLASTICS

< PRECAUTION >

HANDLING PRECAUTIONS FOR PLASTICS

Precautions For Plastics

INFOID:000000001502372

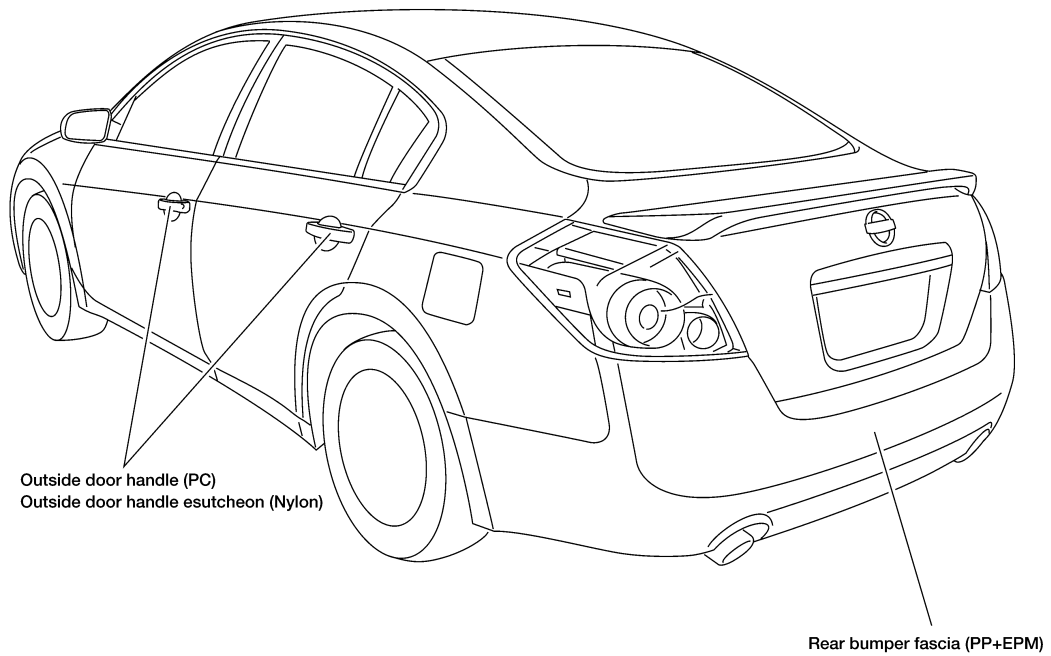
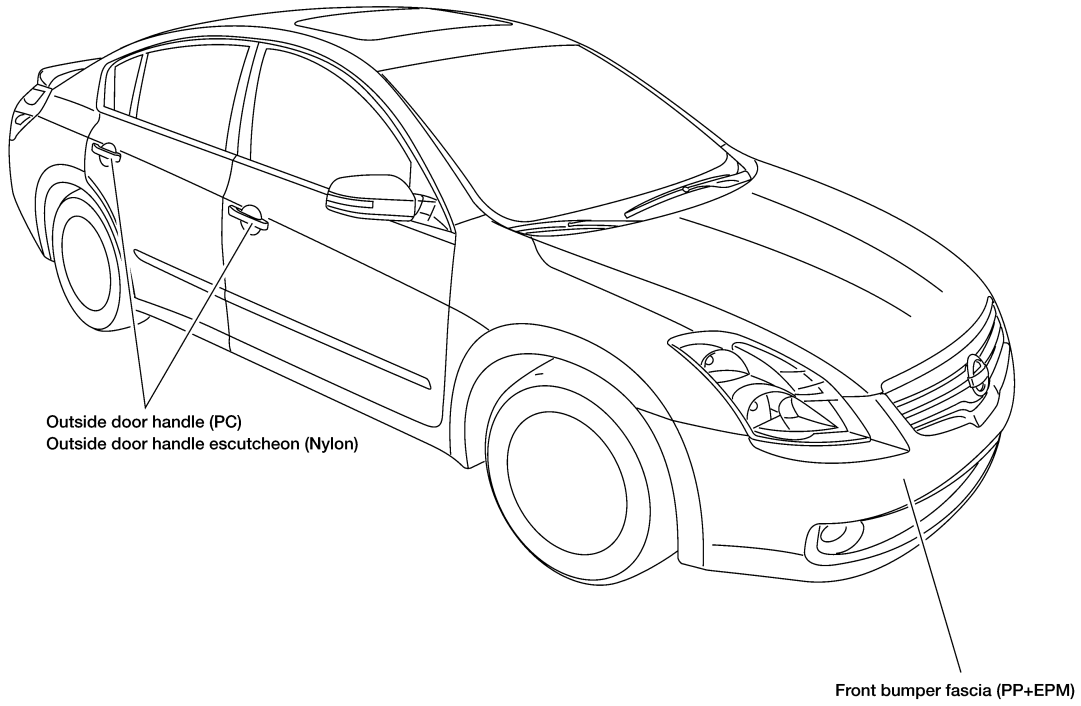
Abbreviation	Material name	Heat resisting temperature °C(°F)	Resistance to gasoline and solvents	Other cautions
PE	Polyethylene	60(140)	Gasoline and most solvents are harmless if applied for a very short time (wipe up quickly).	Flammable
PVC	Poly Vinyl Chloride	80(176)	Same as above.	Poison gas is emitted when burned.
EPM/EPDM	Ethylene Propylene (Diene) copolymer	80(176)	Same as above.	Flammable
PP	Polypropylene	90(194)	Same as above.	Flammable, avoid battery 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.	
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	140(284)	Same as above.	Avoid immersing in water.
PBT	Poly Butylene Terephthalate	140(284)	Same as above.	
PET	Polyester	180(356)	Same as above.	
PEI	Polyetherimide	200(392)	Same as above.	

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

HANDLING PRECAUTIONS FOR PLASTICS

< PRECAUTION >

LOCATION OF PLASTIC PARTS

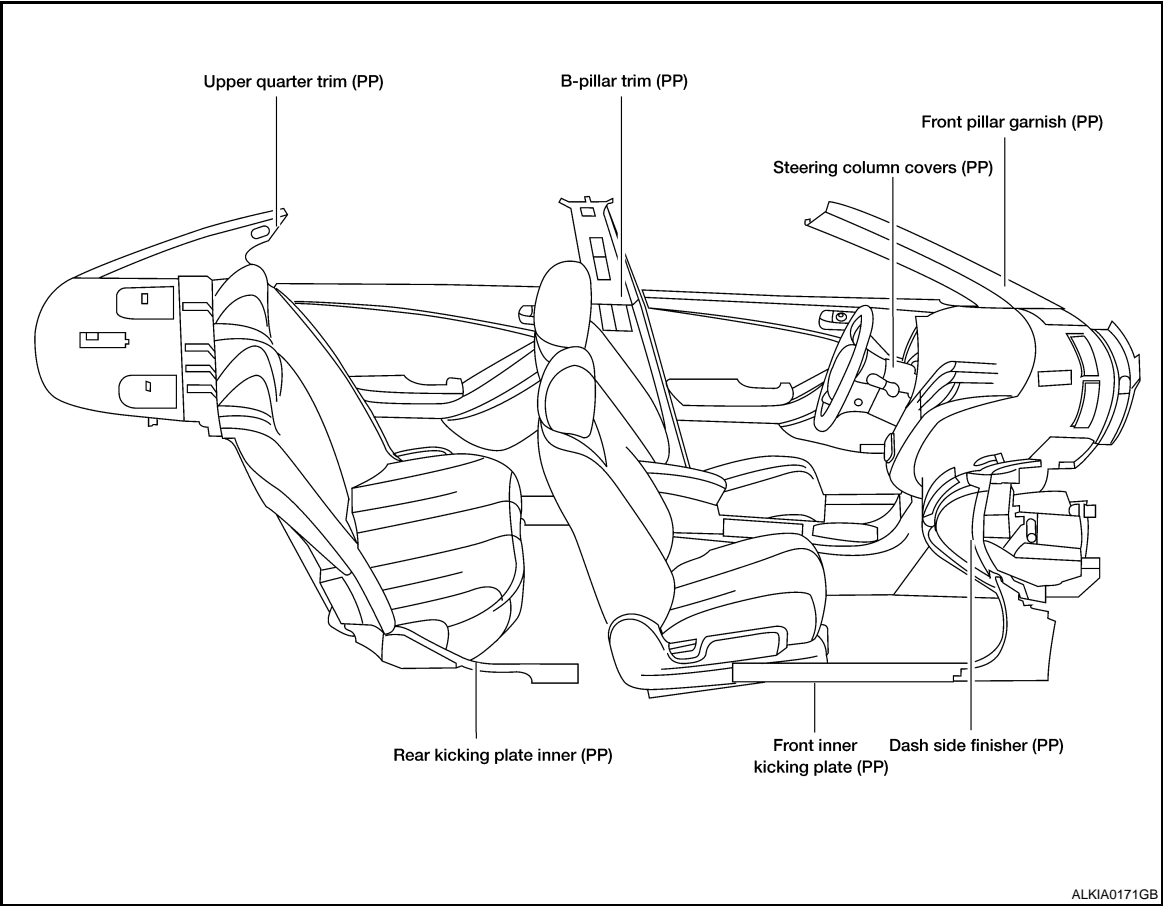


A
B
C
D
E
F
G
H
I
J
BRM
L
M
N
O
P

ALKIA0170GB

HANDLING PRECAUTIONS FOR PLASTICS

< PRECAUTION >



BODY COMPONENT PARTS

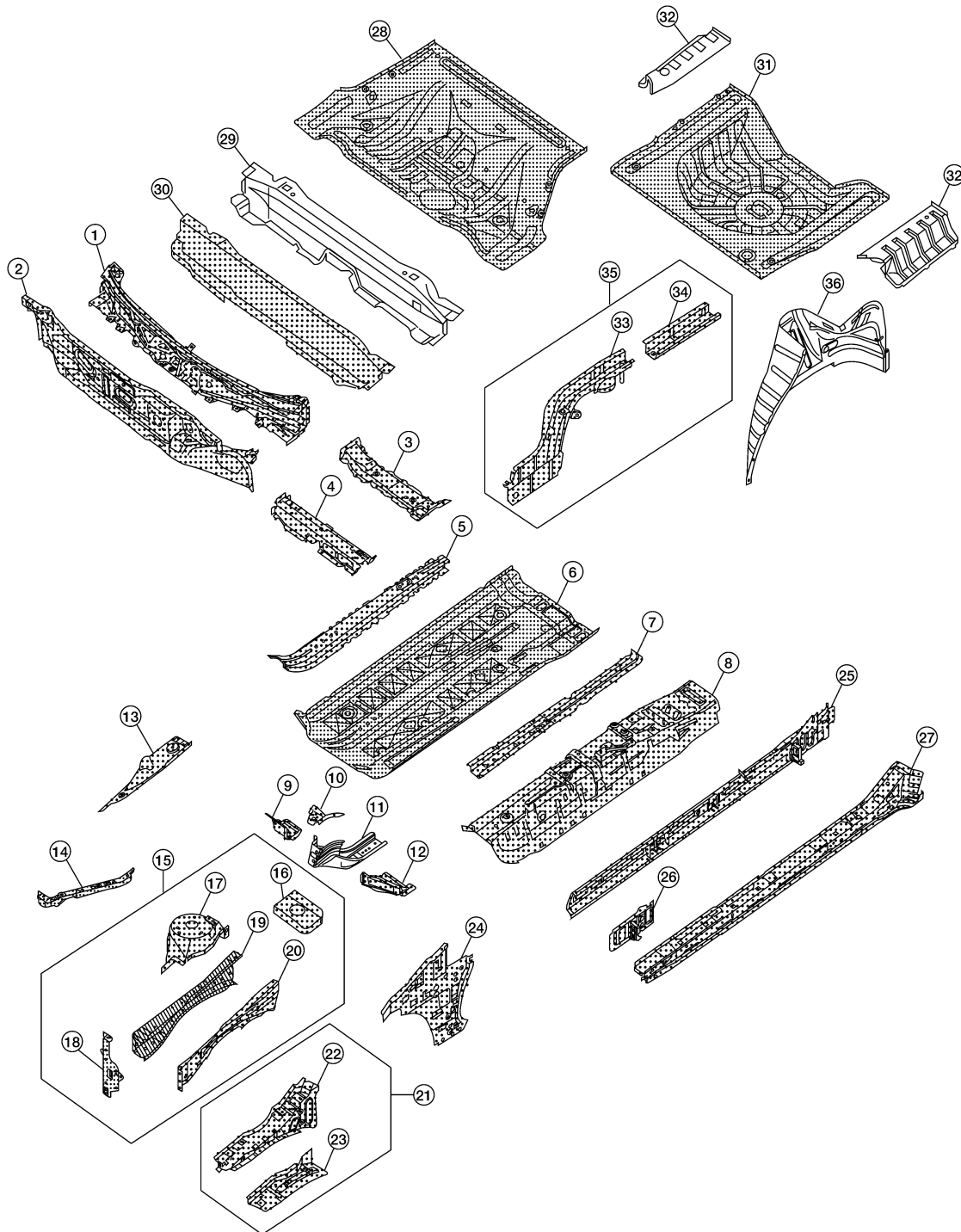
< ON-VEHICLE REPAIR >




ON-VEHICLE REPAIR

BODY COMPONENT PARTS

Underbody Component Parts

INFOID:000000001502373



-  : Indicates both-sided anti-corrosive pre-coated steel portions
-  : Indicates high strength steel (HSS) portions
-  : Indicates both-sided anti-corrosive steel and HSS portions

- | | |
|---|---|
| 1. Upper dash assembly | 25. Inner sill (RH, LH) |
| 2. Lower dash crossmember reinforcement | 26. Outer sill support bracket (RH, LH) |
| 3. Rear crossmember (RH, LH) | 27. Outer sill (RH, LH) |

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

BRM

BODY COMPONENT PARTS

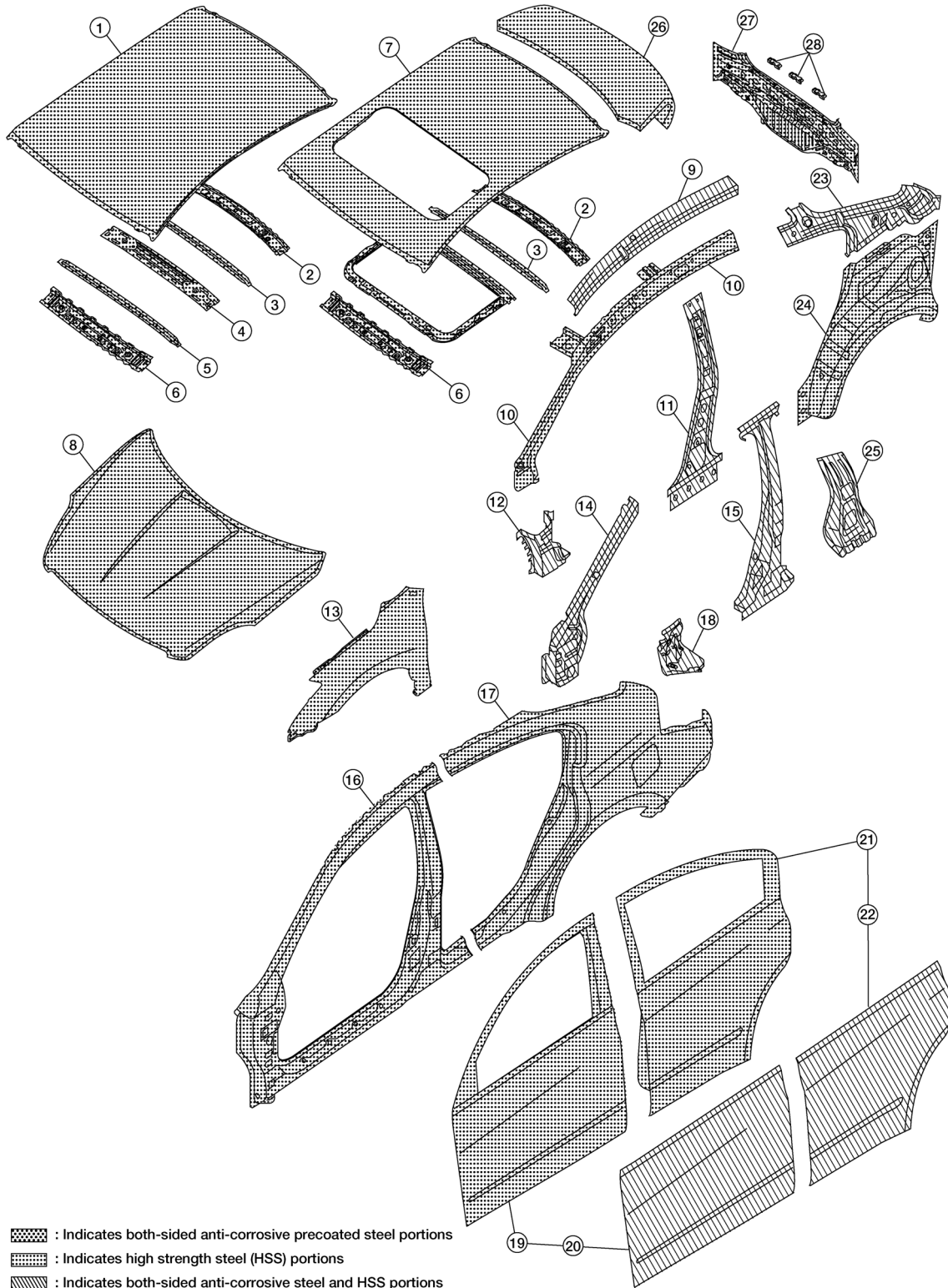
< ON-VEHICLE REPAIR >

- | | |
|--|---|
| 4. Front crossmember (RHLH) | 28. Rear floor front |
| 5. Front sidemember reinforcement upper (RHLH) | 29. Rear seat crossmember |
| 6. Front floor assembly (RHLH) | 30. Rear seat crossmember lower |
| 7. Front sidemember reinforcement lower | 31. Rear floor rear |
| 8. Front floor center | 32. Rear floor rear side (RH, LH) |
| 9. Front suspension member plate (RH, LH) | 33. Rear side member (RH, LH) |
| 10. Front sidemember cap (RH, LH) | 34. Rear side member extension (RH, LH) |
| 11. Front sidemember (RH, LH) | 35. Rear side member assembly (RH, LH) |
| 12. Outrigger (RH, LH) | 36. Rear wheel housing outer (RH, LH) |
| 13. Lower hoodledge support (RH, LH) | |
| 14. Radiator core support (RH, LH) | |
| 15. Front sidemember assembly (RH, LH) | |
| 16. Strut housing bracket (RH, LH) | |
| 17. Strut housing (RH, LH) | |
| 18. Radiator core support side (RH, LH) | |
| 19. Front sidemember extension (RH, LH) | |
| 20. Closing plate (RH, LH) | |
| 21. Hoodledge assembly (RH, LH) | |
| 22. Upper hoodledge (RH, LH) | |
| 23. Upper hoodledge lower (RH, LH) | |
| 24. Dash side (RH, LH) | |

BODY COMPONENT PARTS

< ON-VEHICLE REPAIR >
Body Component Parts

INFOID:000000001502374



- 1. Roof panel assembly
- 2. Rear roof rail
- 3. 3rd roof rail
- 4. 2nd roof rail
- 5. 1st roof rail
- 6. Front roof rail

- 7. Rear roof rail reinforcement (RH, LH)
- 8. Rear wheel well housing outer (RH, LH)
- 9. Rear pillar inner reinforcement (RH, LH)
- 10. Trunk lid assembly (RH, LH)
- 11. Rear door assembly (RH, LH)
- 12. Outer rear door panel (RH, LH)
- 13. Rear door assembly (RH, LH)
- 14. Rear door assembly (RH, LH)
- 15. Rear door assembly (RH, LH)
- 16. Rear door assembly (RH, LH)
- 17. Rear door assembly (RH, LH)
- 18. Rear door assembly (RH, LH)
- 19. Rear door assembly (RH, LH)
- 20. Rear door assembly (RH, LH)
- 21. Rear door assembly (RH, LH)
- 22. Outer rear door panel (RH, LH)
- 23. Rear roof rail reinforcement (RH, LH)
- 24. Rear wheel well housing outer (RH, LH)
- 25. Rear pillar inner reinforcement (RH, LH)
- 26. Trunk lid assembly (RH, LH)
- 27. Rear door assembly (RH, LH)
- 28. Rear door assembly (RH, LH)

ALKIA0100GB

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

BRM

BODY COMPONENT PARTS

< ON-VEHICLE REPAIR >

7. Sun roof panel assembly
8. Hood assembly
9. Roof side rail reinforcement (RH, LH)
10. Outer roof side rail (RH, LH)
11. Inner center pillar (RH,LH)
12. Front pillar reinforcement (RHLH)
13. Fender (RH, LH)
14. Front pillar inner (RH, LH)
15. Center pillar reinforcement (RH, LH)
16. Side body (RH, LH)
17. Rear fender (RH, LH)
18. Rear fender corner (RH, LH)
19. Front door assembly (RH, LH)
20. Outer front door panel (RH, LH)
27. Rear bumper fascia center bracket (RH, LH)

CORROSION PROTECTION

< ON-VEHICLE REPAIR >

CORROSION PROTECTION

Description

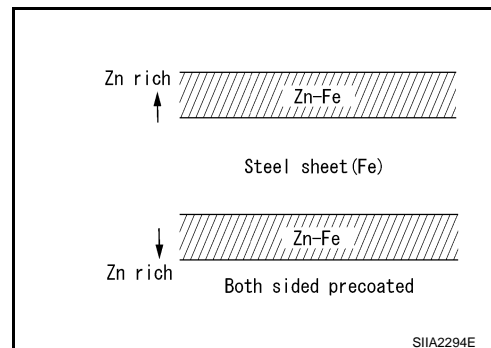
INFOID:000000001502375

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.



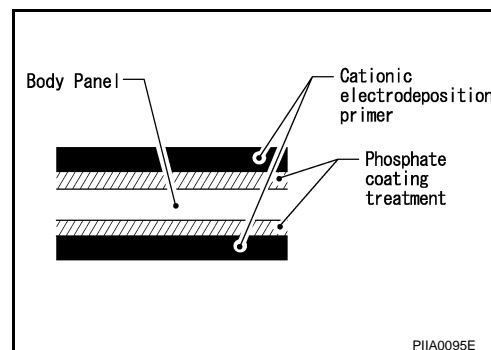
Nissan Genuine Service Parts are fabricated from galvannealed steel. Therefore, it is recommended that GENUINE NISSAN PARTS or equivalent be used for panel replacement to maintain the anti-corrosive performance built into the vehicle at the factory.

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

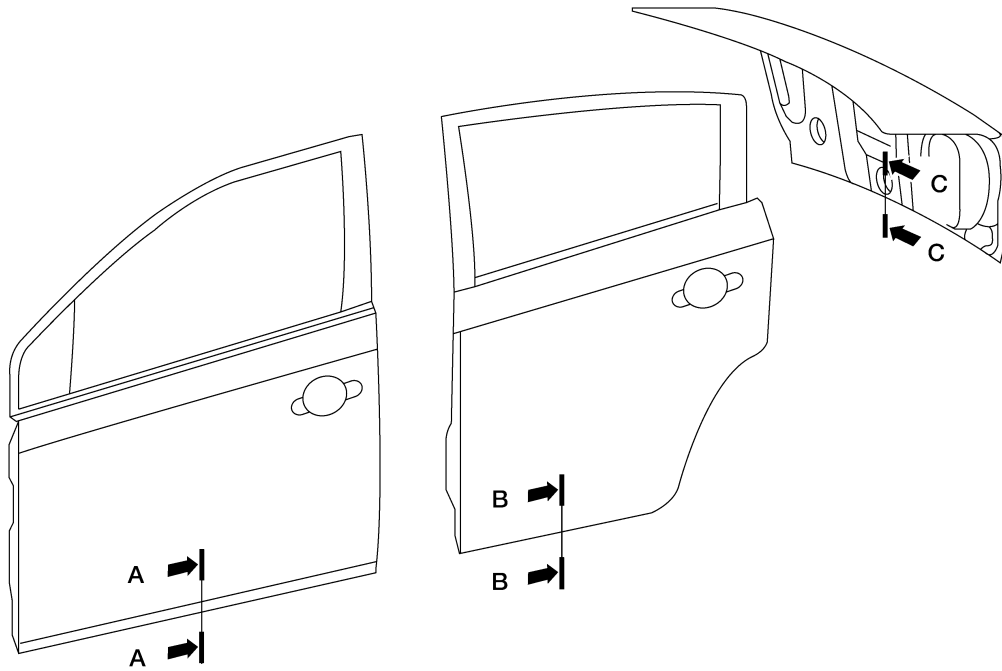
INFOID:000000001502376


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

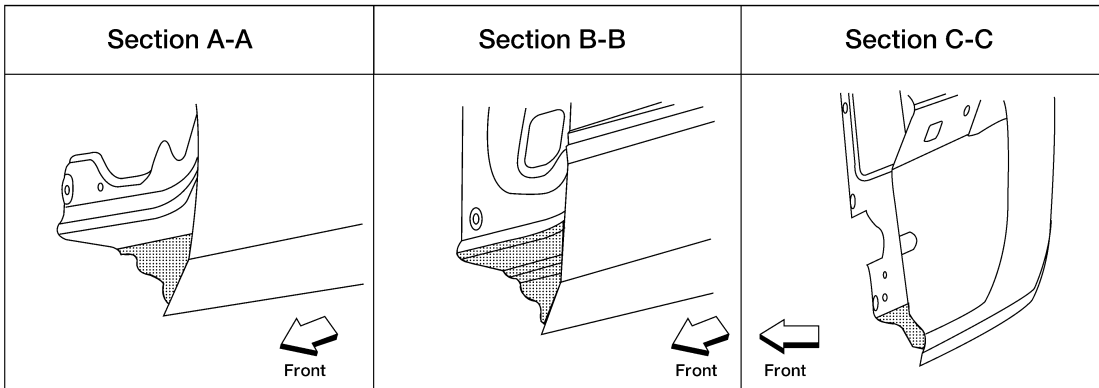
CORROSION PROTECTION

< ON-VEHICLE REPAIR >

the new parts. Select an excellent anti-corrosive wax which will penetrate after application and has a long shelf life.



 : Indicates anti-corrosive wax coated portions



ALKIA0146GB

INFOID:000000001502377

Undercoating

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

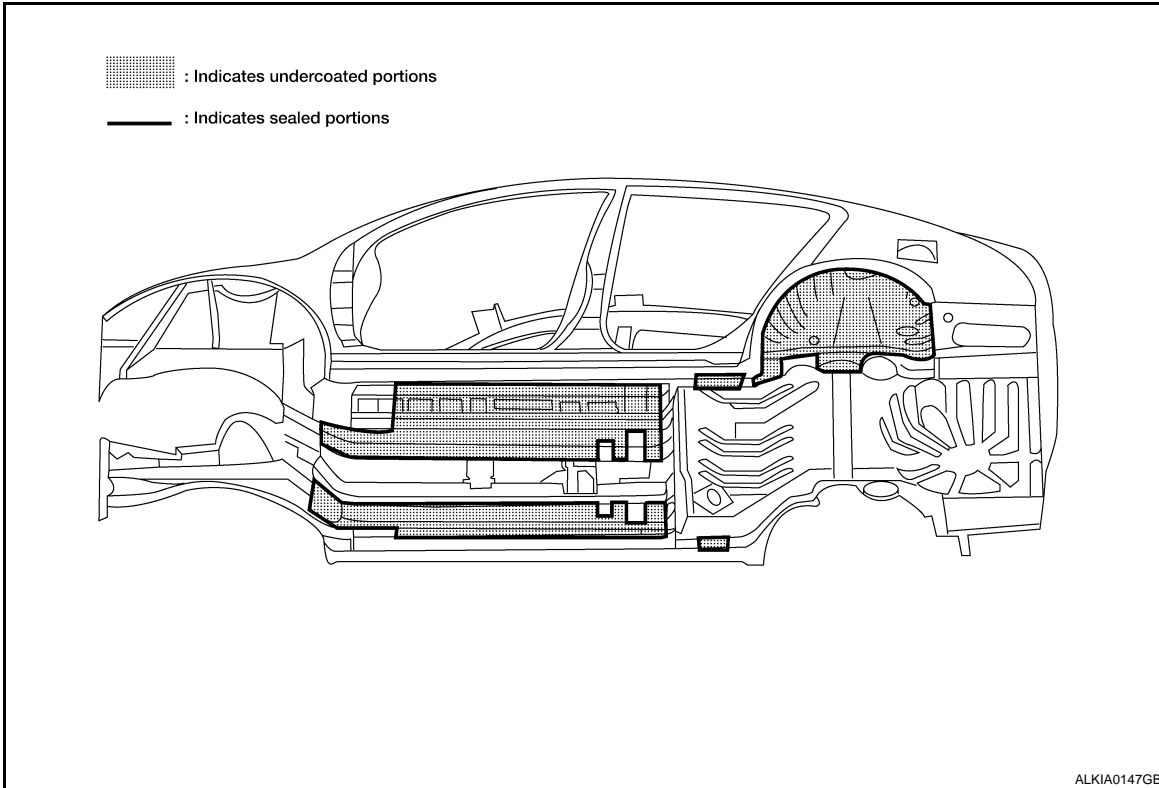
Precautions in Undercoating

1. Do not apply undercoating to any place unless specified (such as the areas above the muffler and three way catalyst which are subjected to heat).
2. Do not undercoat the exhaust pipe or other parts which become hot.
3. Do not undercoat rotating parts.
4. Apply bitumen wax after applying undercoating.

CORROSION PROTECTION

< ON-VEHICLE REPAIR >

5. After putting seal on the vehicle, put undercoating on it.



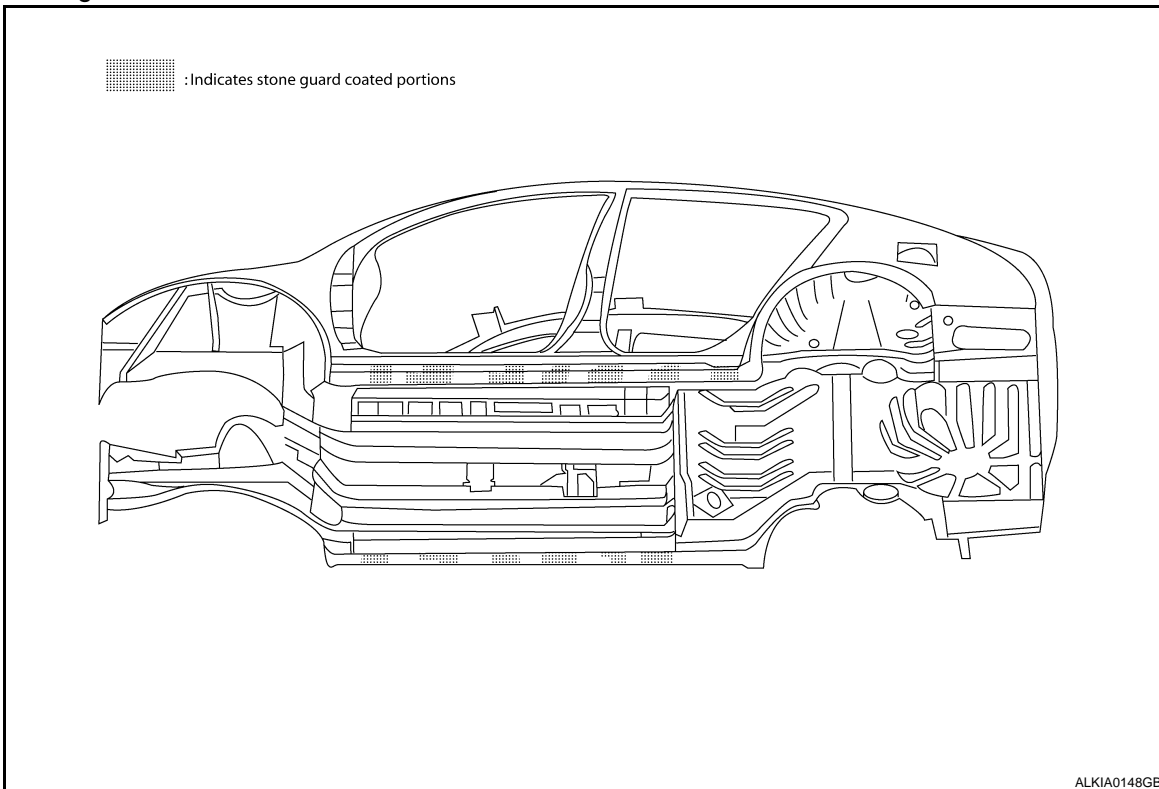
A
B
C
D
E
F
G
H

Stone Guard Coat

INFOID:000000001502378

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.

I
J



BRM

L
M
N
O
P

BODY SEALING

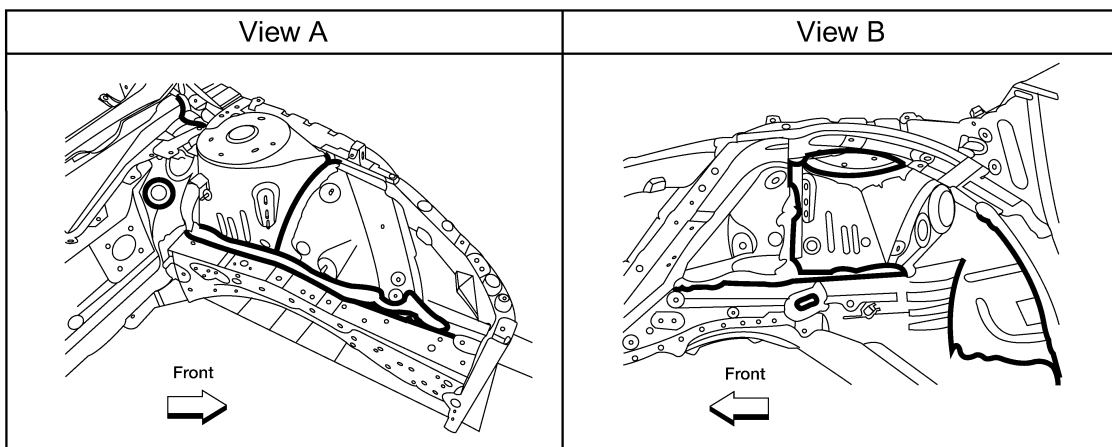
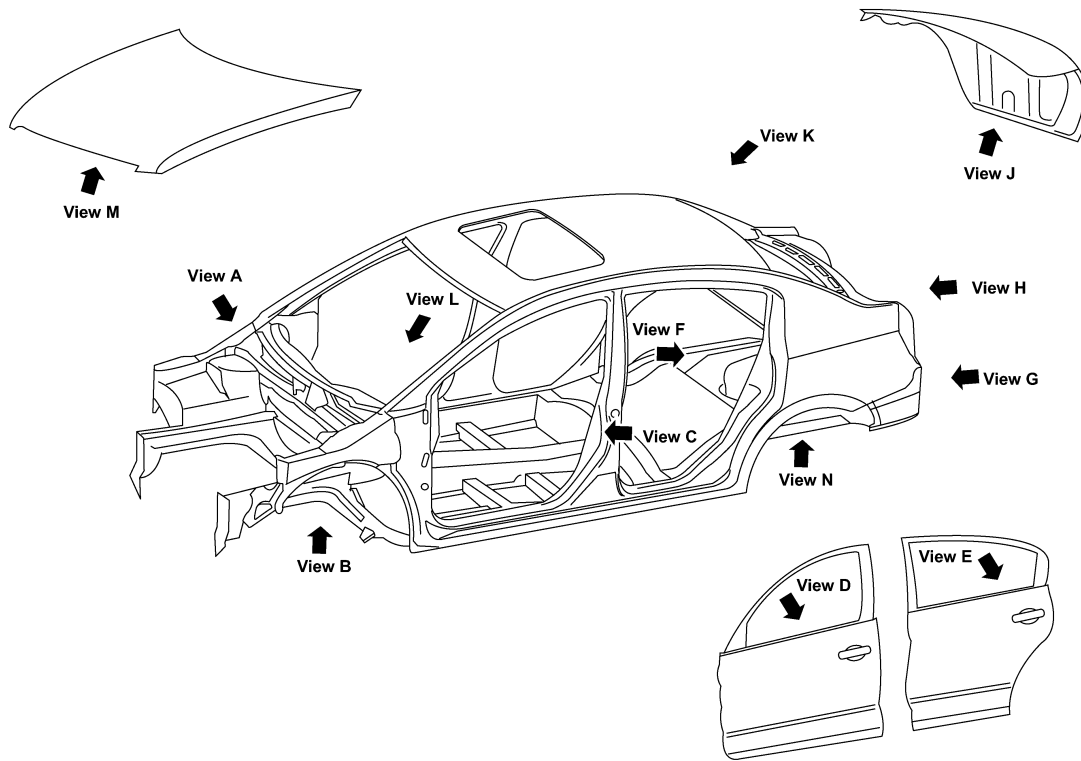
< ON-VEHICLE REPAIR >

BODY SEALING

Description

INFOID:000000001502379

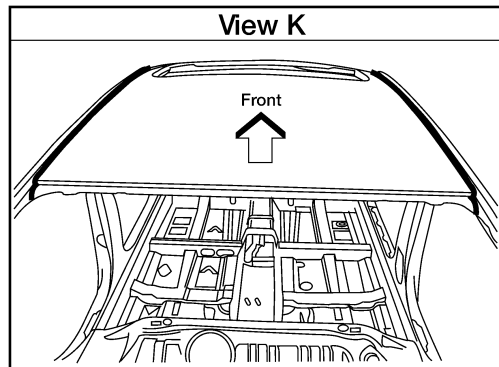
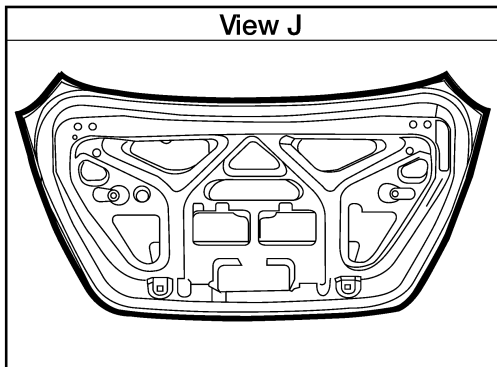
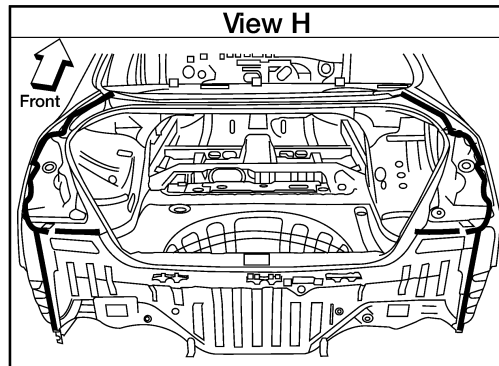
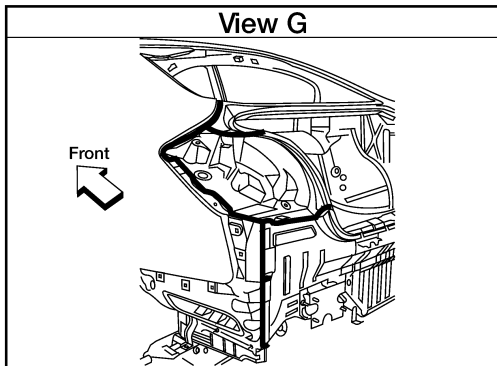
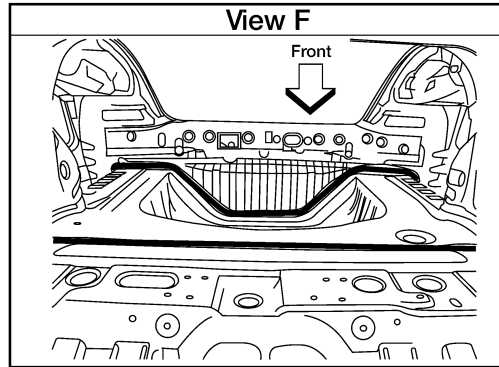
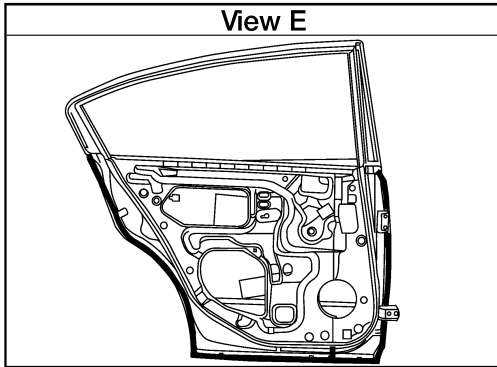
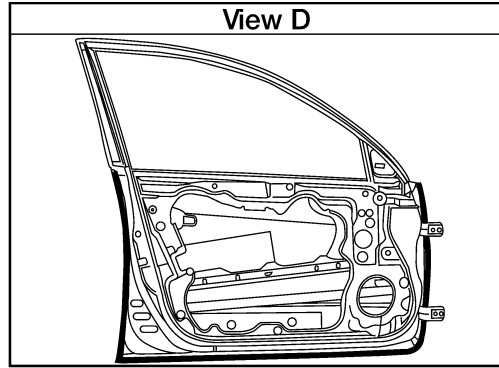
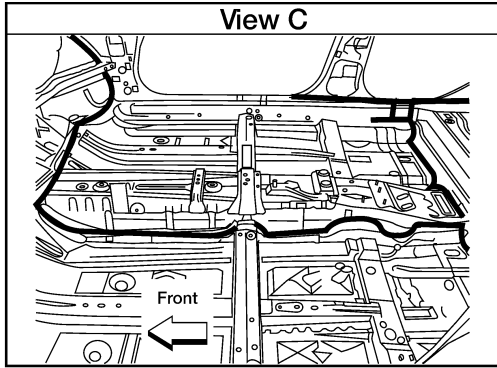
The following figure shows the areas which are sealed at the factory. Sealant which has been applied to these areas should be smooth and free from cuts or gaps. Care should be taken not to apply an excess amount of sealant and not to allow other unaffected parts to come into contact with the sealant.



ALKIA0149GB

BODY SEALING

< ON-VEHICLE REPAIR >



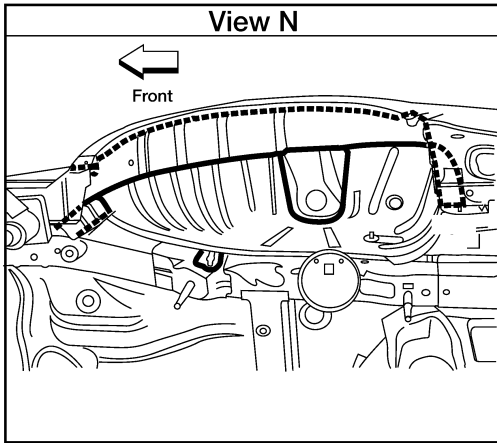
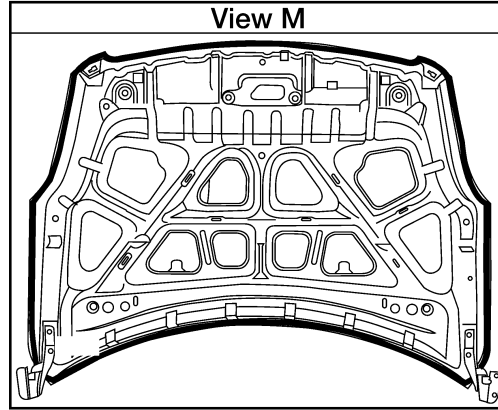
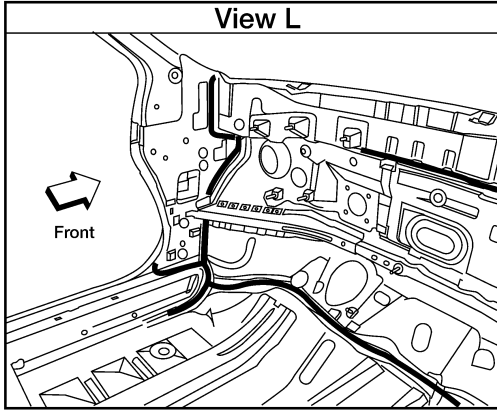
A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

BRM

AWKIA0001GB

BODY SEALING

< ON-VEHICLE REPAIR >



AWKIA0002GB

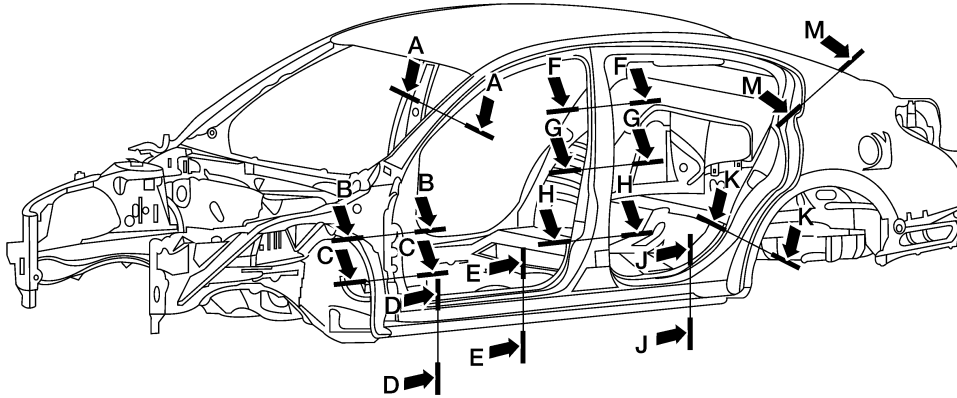
BODY CONSTRUCTION

< ON-VEHICLE REPAIR >

BODY CONSTRUCTION

Body Construction

INFOID:000000001502380



Section A-A	Section B-B	Section C-C
Section D-D	Section E-E	Section F-F
Section G-G	Section H-H	Section J-J
Section K-K	Section M-M	

ALKIA0150GB

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

BRM

BODY ALIGNMENT

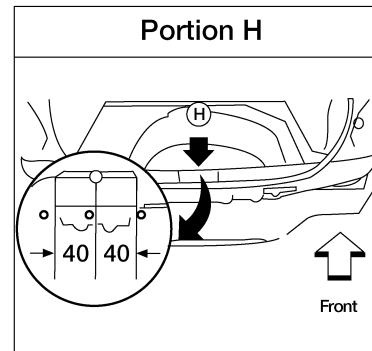
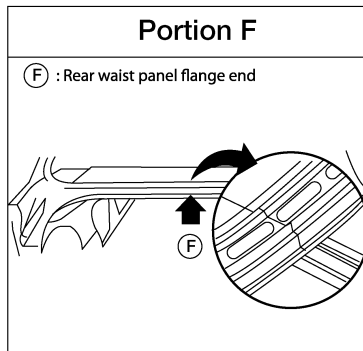
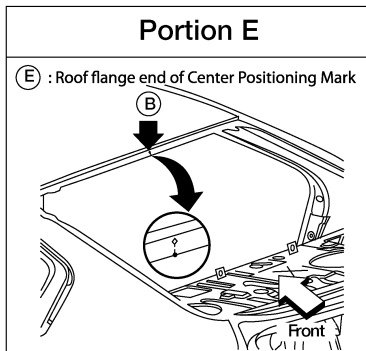
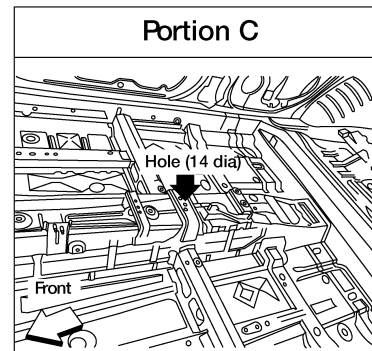
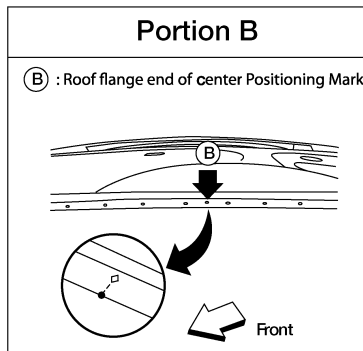
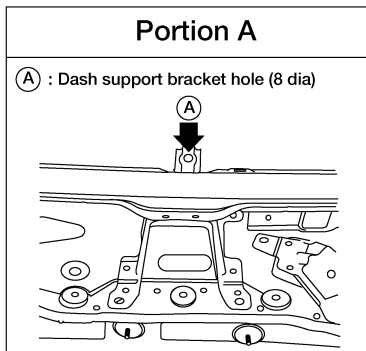
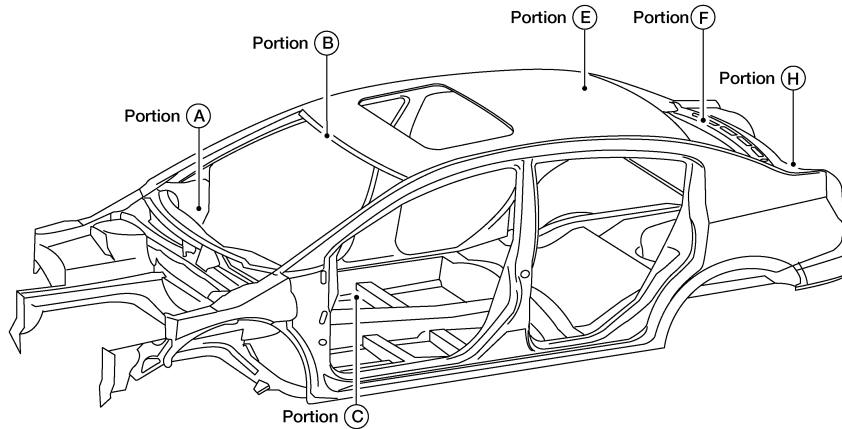
< ON-VEHICLE REPAIR >

BODY ALIGNMENT

Body Center Marks

INFOID:000000001502381

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.



ALKIA0151GB

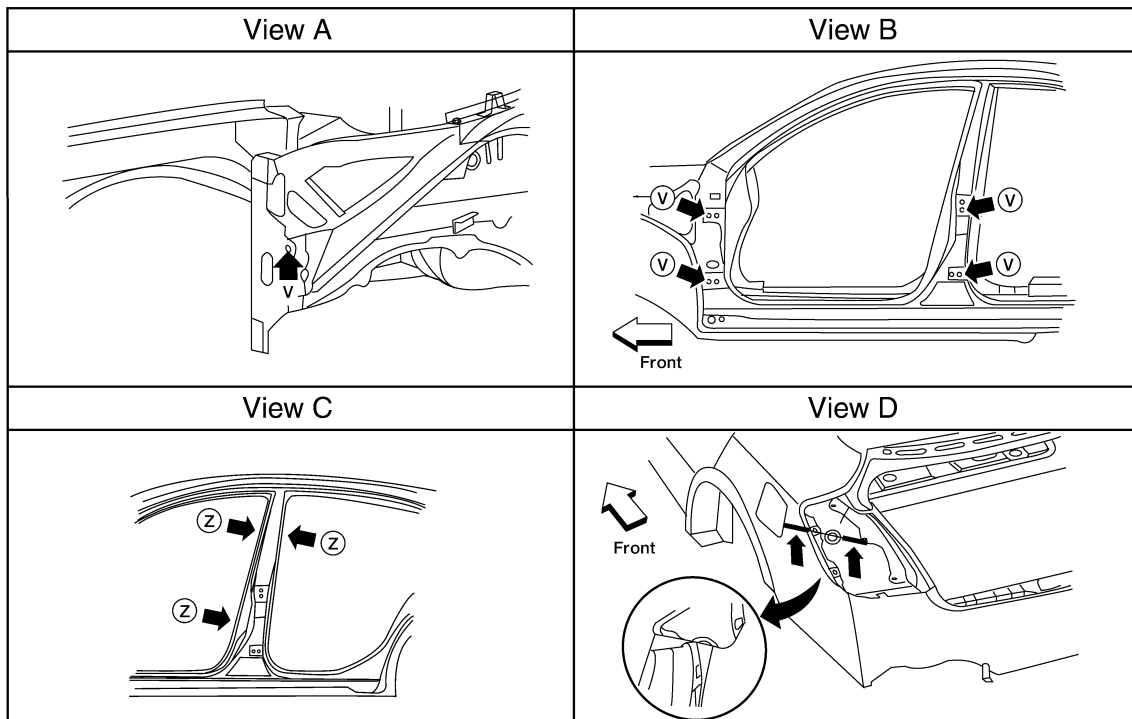
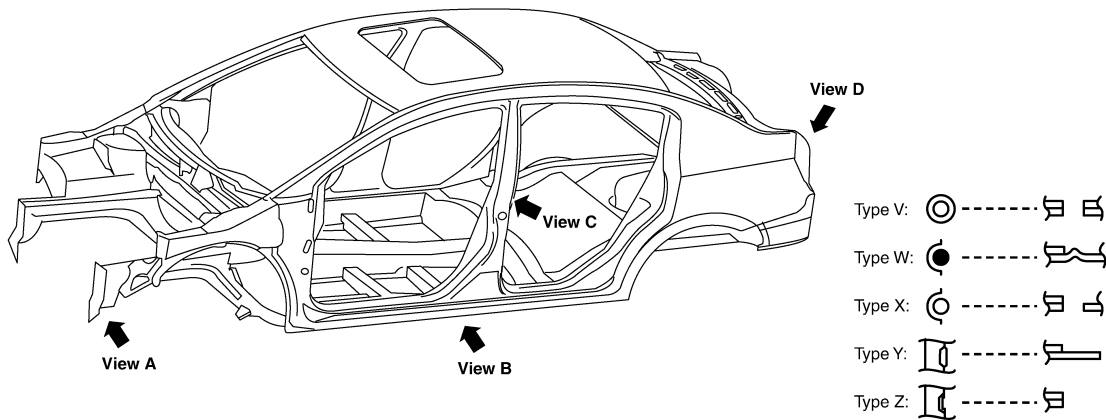
BODY ALIGNMENT

< ON-VEHICLE REPAIR >

Panel Parts Matching Marks

INFOID:000000001502382

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



ALKIA0159GB

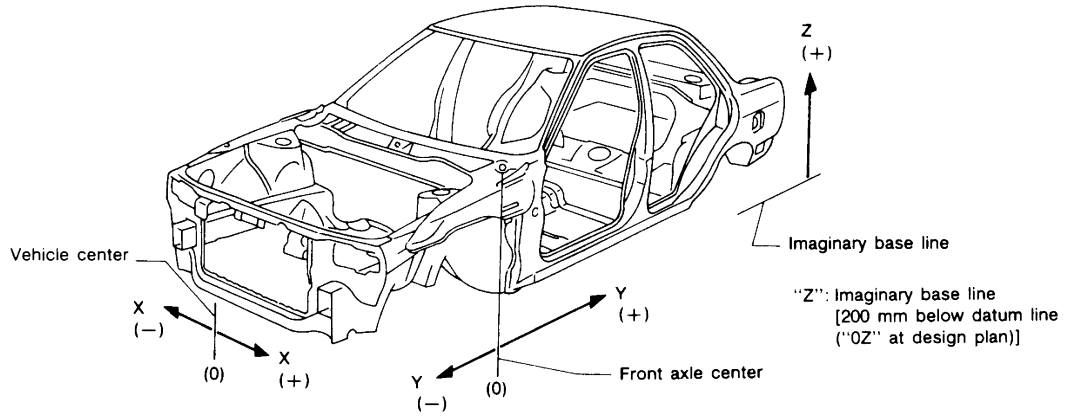
Description

INFOID:000000001502383

- 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".

BODY ALIGNMENT

< ON-VEHICLE REPAIR >



PIIA0104E

BODY ALIGNMENT

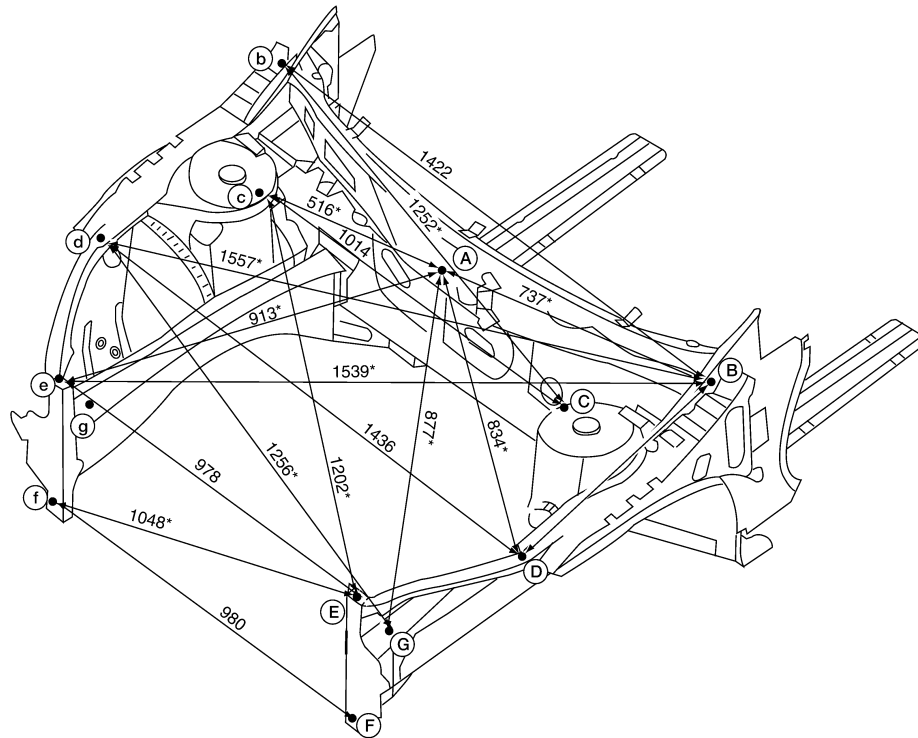
< ON-VEHICLE REPAIR >

Engine Compartment

INFOID:000000001502384

Measurement

Figures marked with a (*) indicate symmetrically identical dimensions on both right and left sides of the vehicle.



Point	Dimension
(B) ~ (D)	617*
(B) ~ (E)	989*
(B) ~ (G)	1512*
(C) ~ (B)	1268*
(C) ~ (D)	389*
(C) ~ (E)	673*
(C) ~ (G)	630*
(C) ~ (g)	1182*
(D) ~ (G)	394*
(E) ~ (G)	201*
(G) ~ (g)	990

Unit : mm

ALKIA0168GB

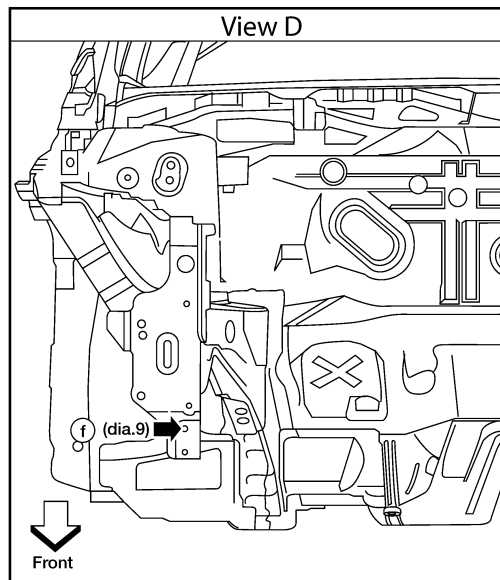
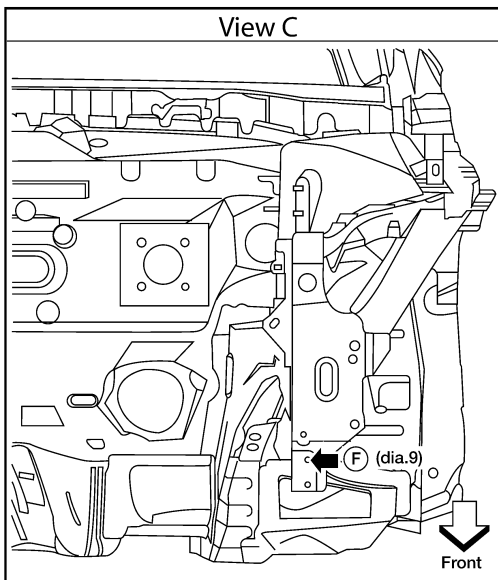
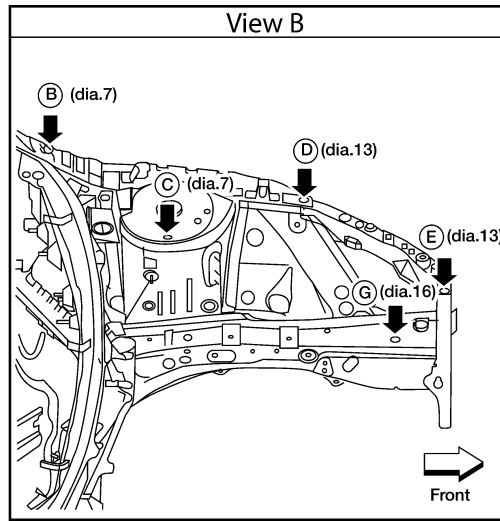
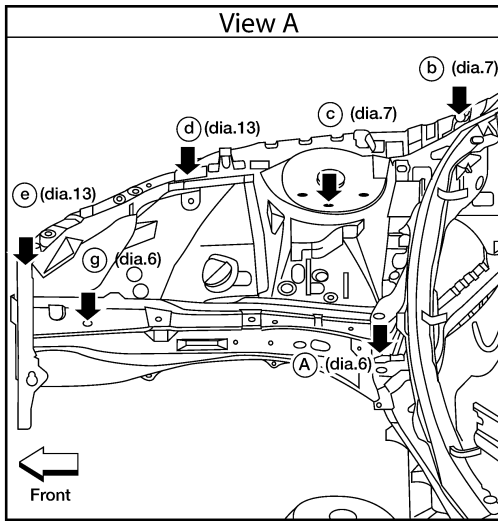
A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

BRM

BODY ALIGNMENT

< ON-VEHICLE REPAIR >

Measurement Points



ALKIA0158GB

BODY ALIGNMENT

< ON-VEHICLE REPAIR >

Underbody

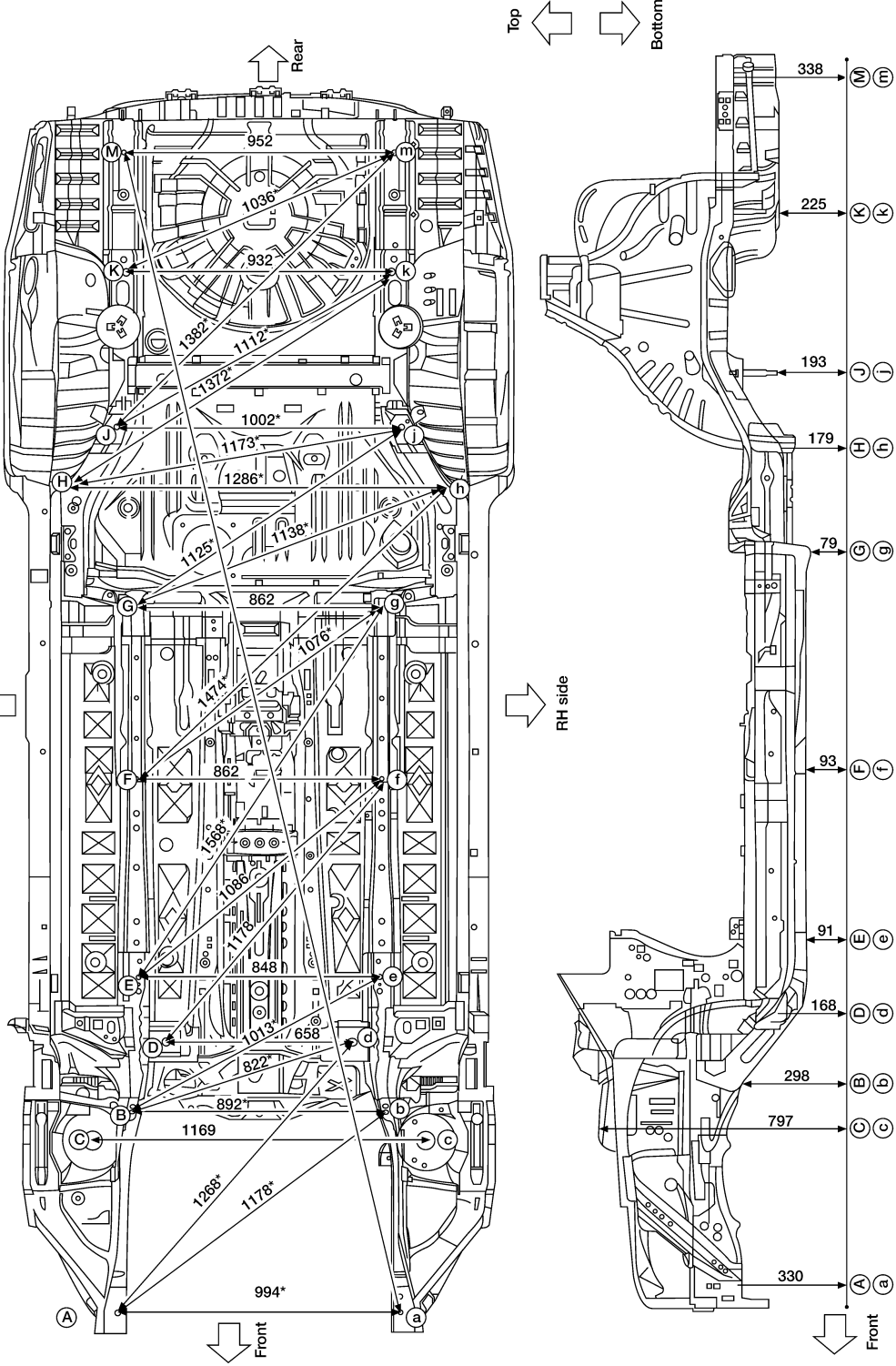
INFOID:000000001502385

Measurement

Figures marked with a (*) indicate symmetrically identical dimensions on both right and left hand sides of the vehicle.

As viewed from underside.

All dimensions indicated in this figure are actual.



Unit : mm

ALKIA0173GB

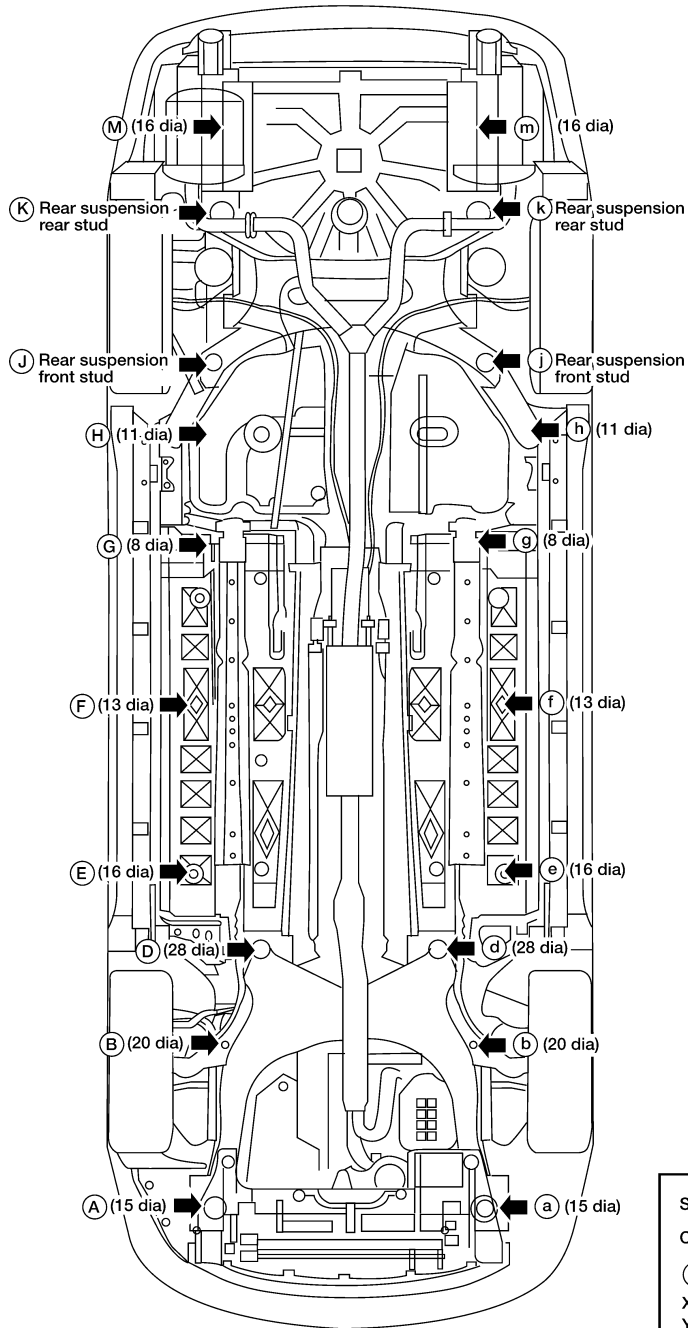
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

BRM

BODY ALIGNMENT

< ON-VEHICLE REPAIR >

Measurement Points



(A) a
X : 556
Y : ± 497
Z : 330

(B) b
X : 149
Y : ± 446
Z : 298

(D) d
X : 395
Y : ± 327
Z : 168

(E) e
X : 624
Y : ± 424
Z : 91

(F) f
X : 1294
Y : ± 431
Z : 93

(G) g
X : 1938
Y : ± 431
Z : 79

(H) h
X : 2301
Y : ± 643
Z : 79

(J) j
X : 2558
Y : ± 501
Z : 193

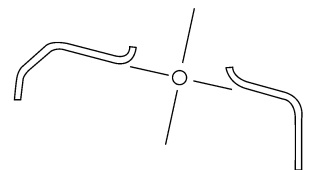
(K) k
X : 3107
Y : ± 466
Z : 225

(M) m
X : 3525
Y : ± 476
Z : 338

Strut tower centers

Coor

(C) (c) Front
X : 49
Y : ± 585
Z : 597



Unit : mm

ALKIA0174GB

BODY ALIGNMENT

< ON-VEHICLE REPAIR >

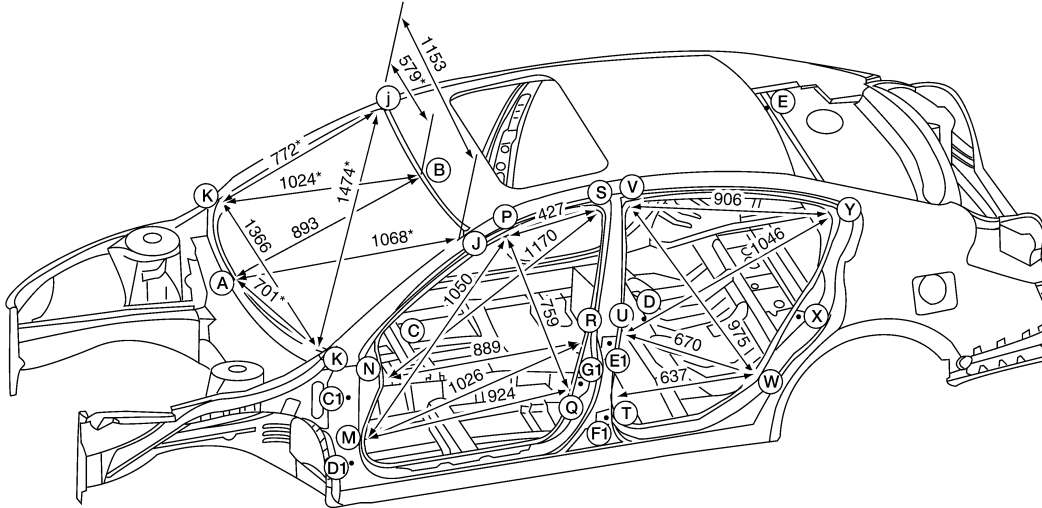
Passenger Compartment

INFOID:000000001502386

Measurement

Unit : mm

Figures marked with a (*) indicate symmetrically identical dimensions on both right and left sides of the vehicle.



Point	Dimension	Point	Dimension	Point	Dimension	Point	Dimension
(A) - (C)	1044	(D) ~ (T)	742	(Gt) - (X)	987	(S) ~ (Q)	779
(A) - (D)	1890	(D) ~ (t)	904	(M) ~ (m)	1464	(S) ~ (s)	1143
(A) - (F)	3134	(D) ~ (u)	973	(M) ~ (P)	1050	(T) ~ (t)	1471
(B) - (C)	972	(D) ~ (U)	823	(M) ~ (q)	1735*	(T) ~ (V)	840
(C) - (E)	1796*	(D) ~ (v)	1148	(M) ~ (r)	1794*	(T) ~ (y)	1823*
(C) - (m)	912*	(D) ~ (V)	1054	(M) ~ (s)	1896*	(T) ~ (Y)	1212
(C) - (n)	928*	(D) ~ (w)	883	(M) ~ (S)	1386	(U) ~ (u)	1479
(C) - (p)	1100*	(D) ~ (W)	715	(N) ~ (n)	1442	(V) ~ (t)	1544*
(C) - (q)	860*	(D) ~ (y)	1234	(N) ~ (P)	803	(V) ~ (v)	1139
(C) - (r)	970*	(D) ~ (Y)	1137	(N) ~ (r)	1710*	(V) ~ (w)	1624*
(C) - (s)	1249*	(D1) ~ (Et)	1223	(P) ~ (p)	1181	(W) ~ (t)	1607*
(C1) - (Et)	1167	(D1) ~ (Fi)	1147	(Q) ~ (n)	1686*	(W) ~ (u)	1624*
(C1) - (Fi)	1181	(D1) ~ (Gt)	1068	(Q) ~ (p)	1521*	(W) ~ (w)	1480
(C1) - (Gt)	1064	(D1) ~ (X)	2054	(Q) ~ (q)	1471	(W) ~ (y)	1564*
(C1) - (X)	2029	(Et) ~ (X)	867	(Q) ~ (s)	1513*	(W) ~ (Y)	762
(D) - (E)	1102	(Fi) - (X)	931	(R) ~ (r)	1480	(Y) ~ (y)	1261

ALKIA0167GB

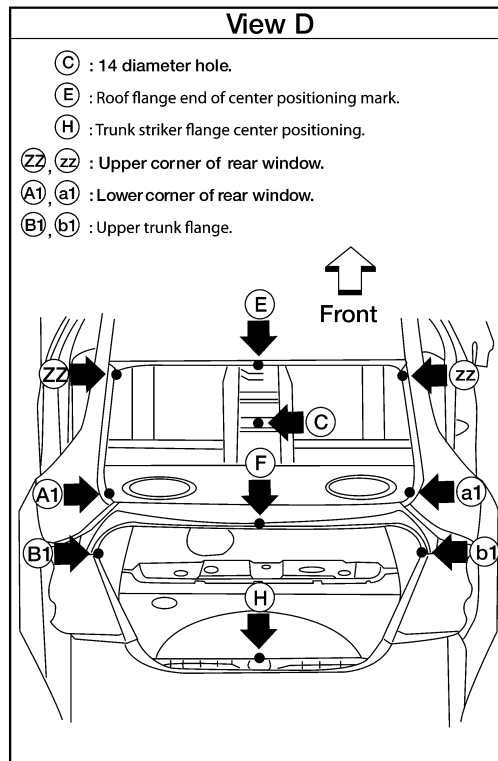
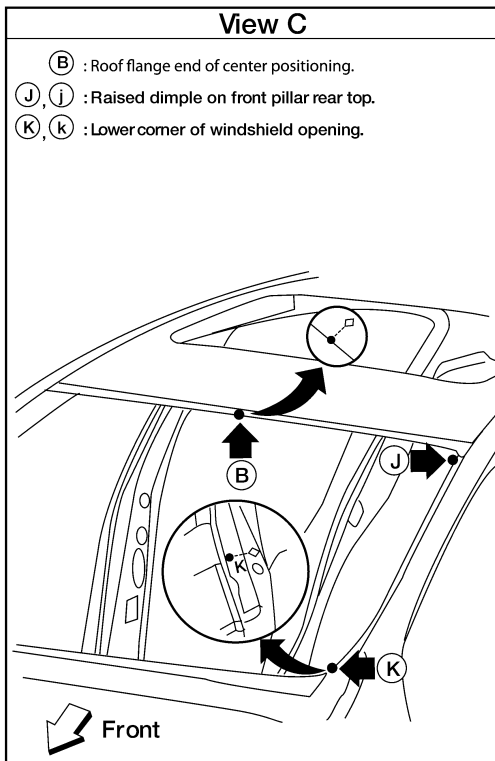
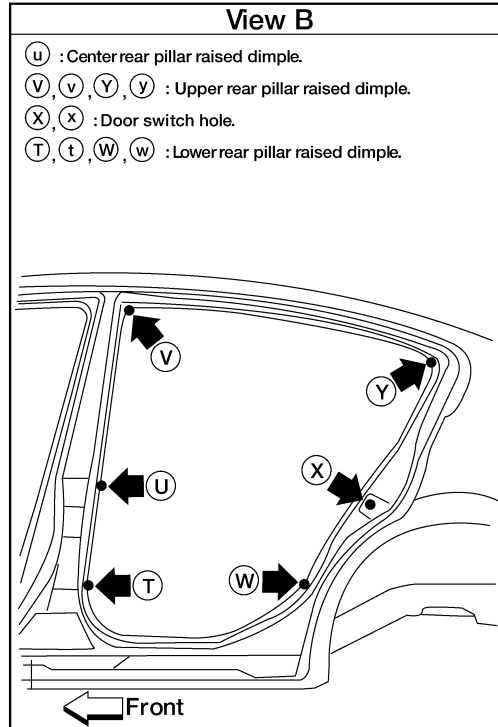
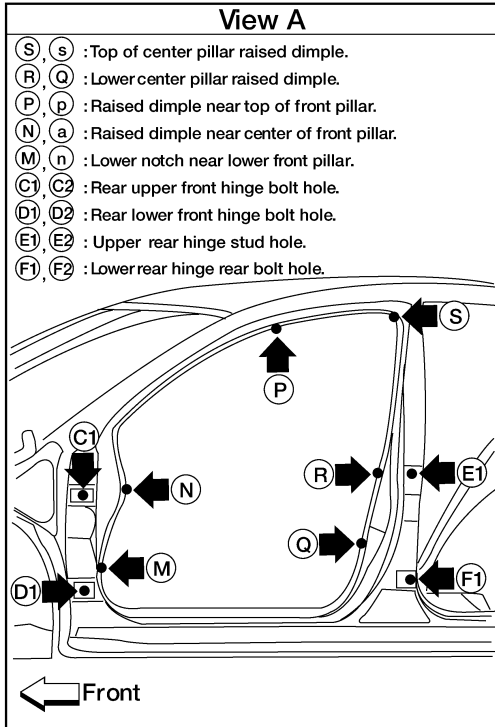
A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

BRM

BODY ALIGNMENT

< ON-VEHICLE REPAIR >

Measurement Points



ALKIA0160GB

BODY ALIGNMENT

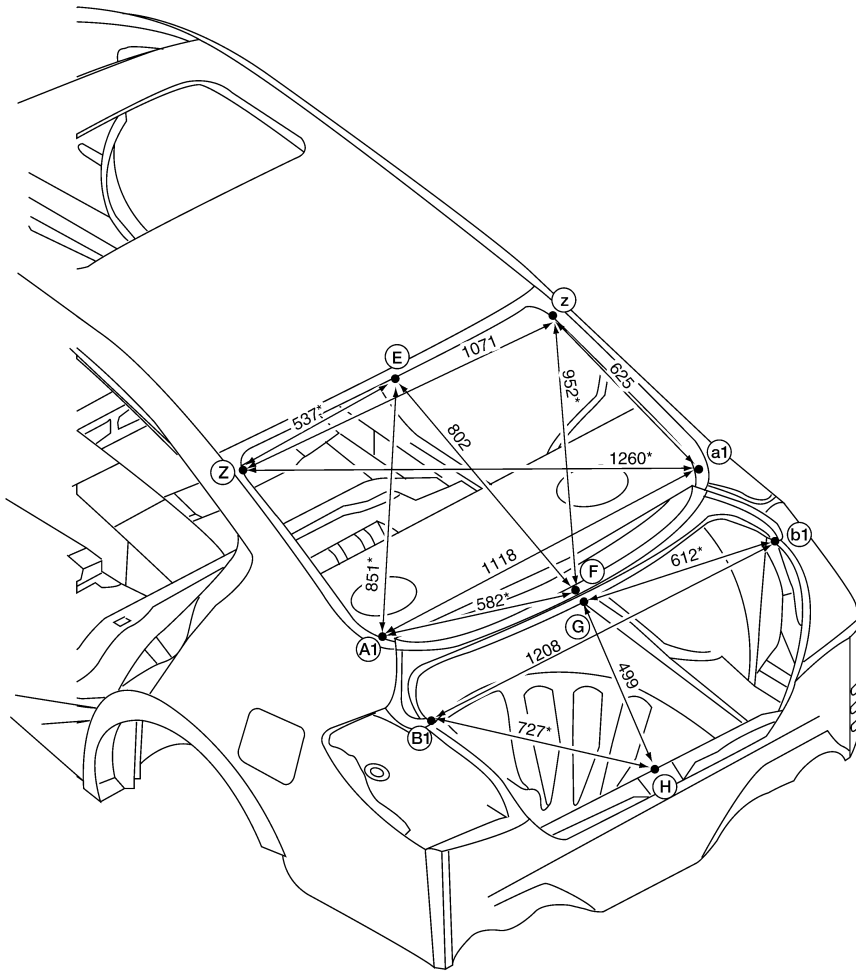
< ON-VEHICLE REPAIR >

Rear Body

INFOID:000000001502387

Measurement

Figures marked with a (*) indicate symmetrically identical dimensions on both right and left sides of the vehicle.



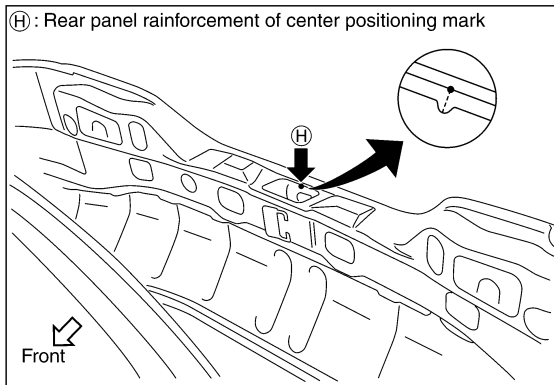
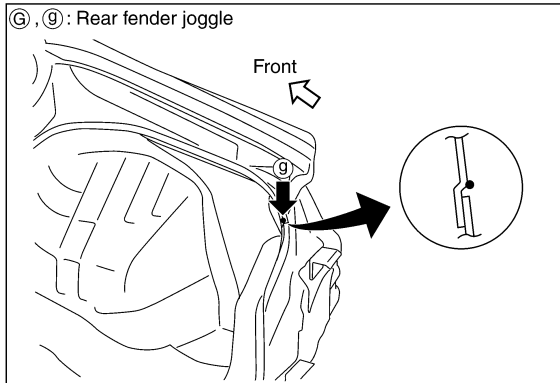
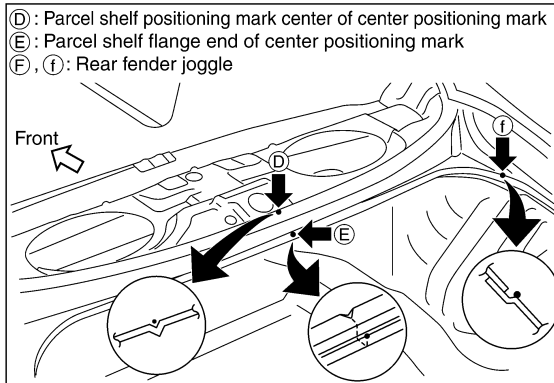
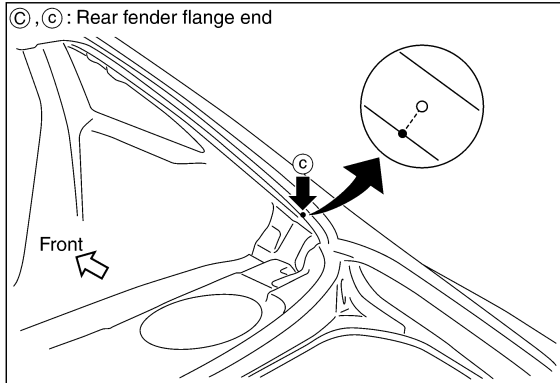
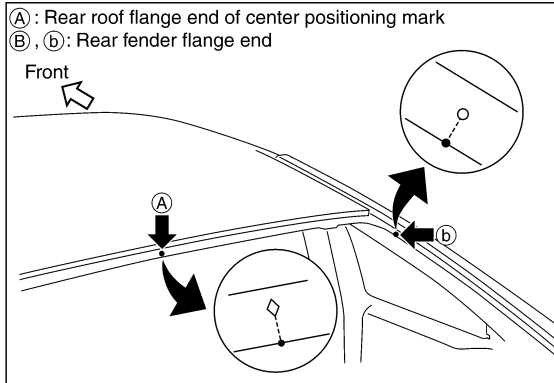
Unit : mm

ALKIA0169GB

BODY ALIGNMENT

< ON-VEHICLE REPAIR >

Measurement Points



SIIA2147E

PRECAUTIONS IN REPAIRING HIGH STRENGTH STEEL

< ON-VEHICLE REPAIR >

PRECAUTIONS IN REPAIRING HIGH STRENGTH STEEL

High Strength Steel (HSS)

INFOID:000000001502388

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:

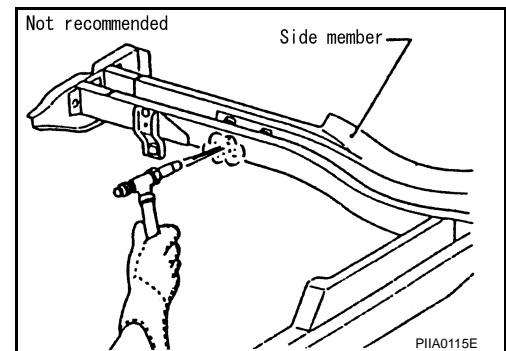
Tensile strength	Nissan/Infiniti designation	Major applicable parts
373 N/mm ² (38kg/mm ² ,54klb/sq in)	SP130	<ul style="list-style-type: none"> • Front side member assembly • Hoodledge assembly • Upper dash • Front pillar reinforcement assembly • Rear side member assembly • Other reinforcements

SP130 is the most commonly used HSS.

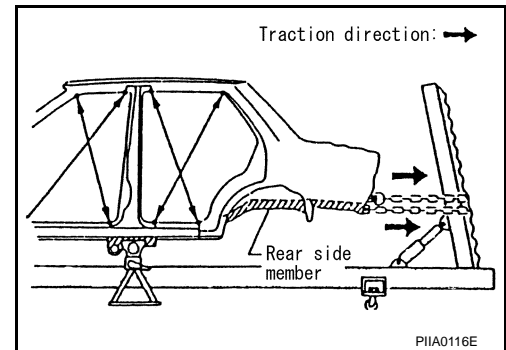
Read the following precautions when repairing HSS:

1. Additional points to consider

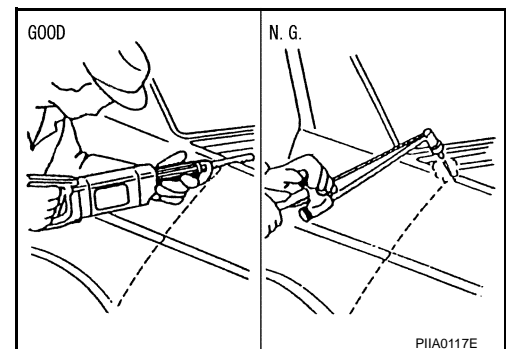
- The repair of reinforcements (such as side members) by heating is not recommended since it may weaken the component. When heating is unavoidable, do not heat HSS parts above 550°C (1,022°F). Verify heating temperature with a thermometer. (Crayon-type and other similar type thermometer are appropriate.)



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



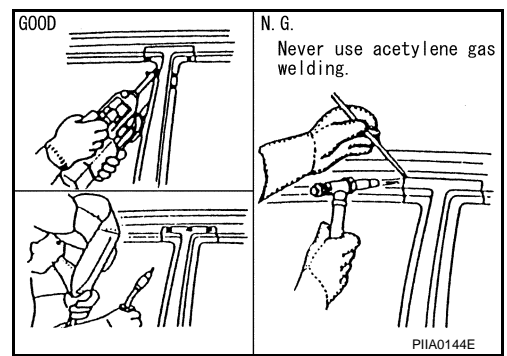
- When cutting HSS panels, avoid gas (torch) cutting if possible. Instead, use a saw to avoid weakening surrounding areas due to heat. If gas (torch) cutting is unavoidable, allow a minimum margin of 50 mm (1.97in).



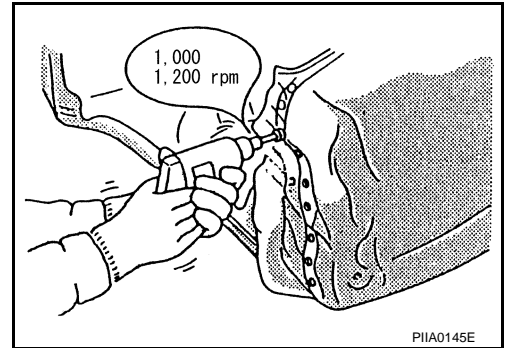
PRECAUTIONS IN REPAIRING HIGH STRENGTH STEEL

< ON-VEHICLE REPAIR >

- 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 M.I.G. welding. Do not use gas (torch) welding because it is inferior in welding strength.



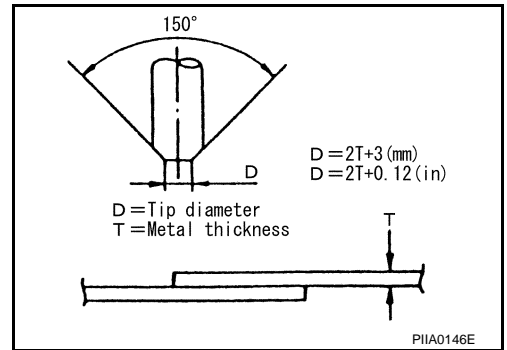
- The spot weld on HSS panels is harder than that of an ordinary steel panel. Therefore, when cutting spot welds on a HSS panel, use a low speed high torque drill (1,000 to 1,200 rpm) to increase drill bit durability and facilitate the operation.



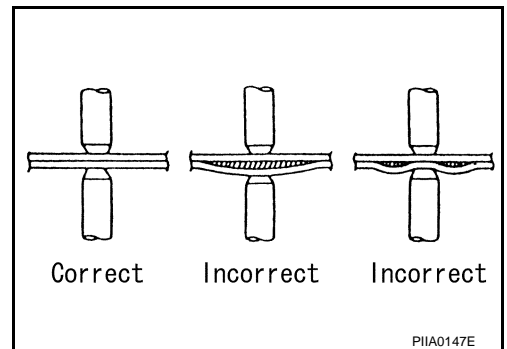
2. Precautions in spot welding HSS

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.



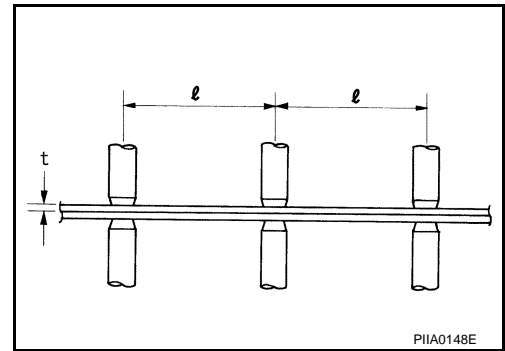
PRECAUTIONS IN REPAIRING HIGH STRENGTH STEEL

< ON-VEHICLE REPAIR >

- Follow the specifications for the proper welding pitch.

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

Unit:mm



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

BRM

REPLACEMENT OPERATIONS

< ON-VEHICLE REPAIR >

REPLACEMENT OPERATIONS

Description

INFOID:000000001502389

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.


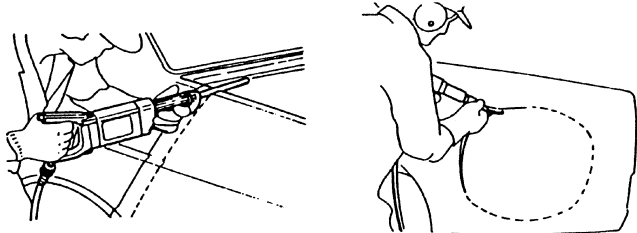


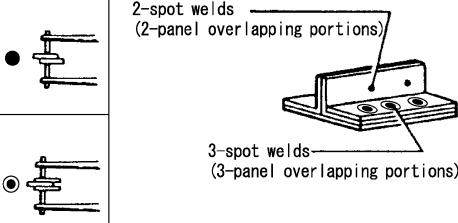
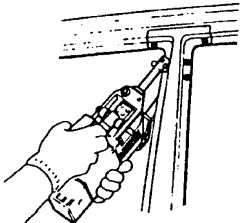


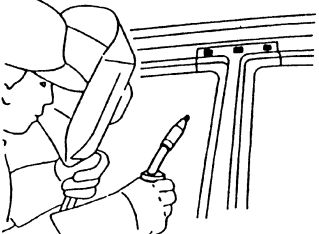
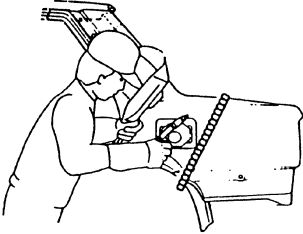

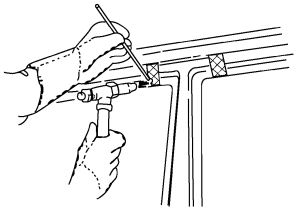
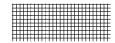
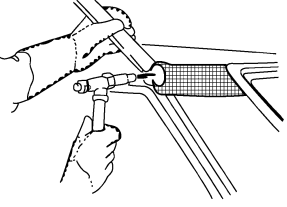
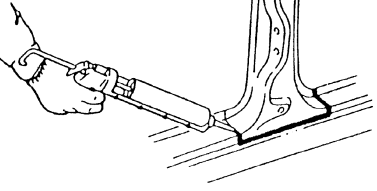
Technicians are also encouraged to read Body Repair Manual (Fundamentals) in order to ensure that the original functions and quality of the vehicle can be maintained. The Body Repair Manual (Fundamentals) contains additional information, including cautions and warning, that are not including in this 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.

REPLACEMENT OPERATIONS

< ON-VEHICLE REPAIR >

The symbols used in this section for cutting and welding / brazing operations are shown below.

 Saw cut or air chisel cut		
Spot weld  2-spot welds  3-spot welds	 2-spot welds (2-panel overlapping portions) 3-spot welds (3-panel overlapping portions)	
 MIG plug weld  MIG seam weld/ Point weld		
 Brazing		
 Soldering		
Sealing		

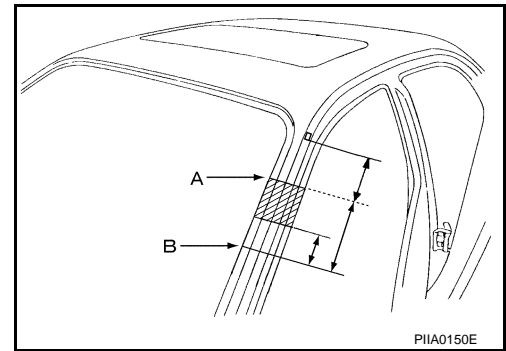
A
B
C
D
E
F
G
H
I
J
BRM
L
M
N
O
P

BRM

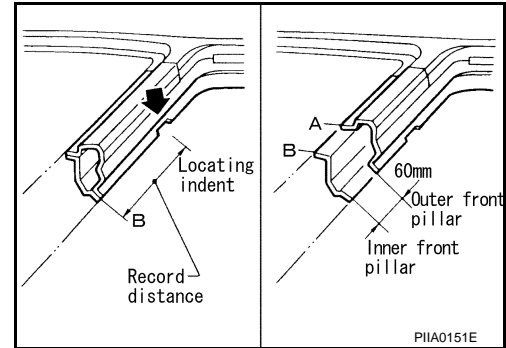
REPLACEMENT OPERATIONS

< ON-VEHICLE REPAIR >

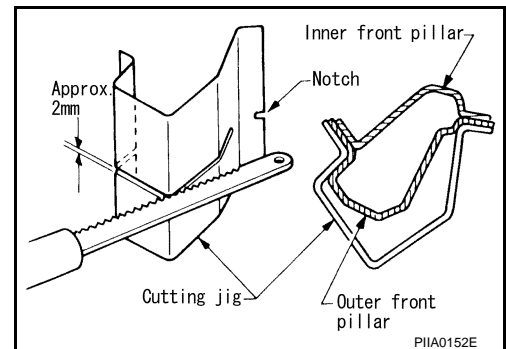
- Front pillar butt joint can be determined anywhere within shaded area as shown in the figure. The best location for the butt joint is at position A due to the construction of the vehicle. Refer to the front pillar section.



- 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 above inner front pillar cut position.

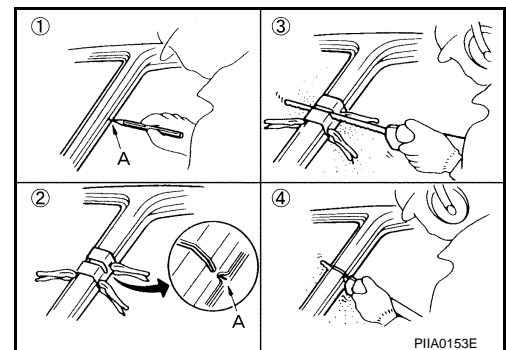


- Prepare a cutting jig to make outer pillar easier to cut. Also, this will permit service part to be accurately cut at joint position.



- 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.

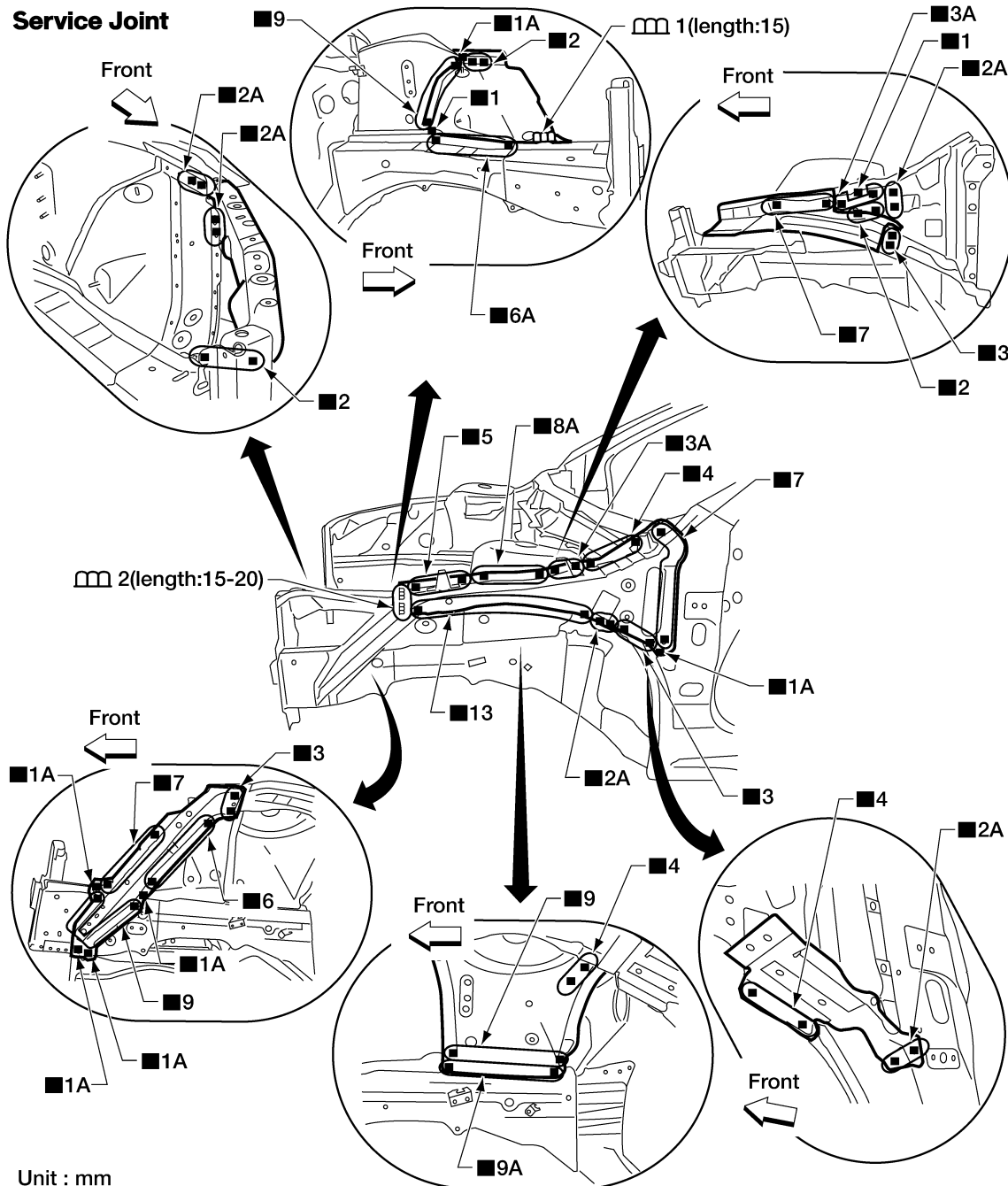


REPLACEMENT OPERATIONS

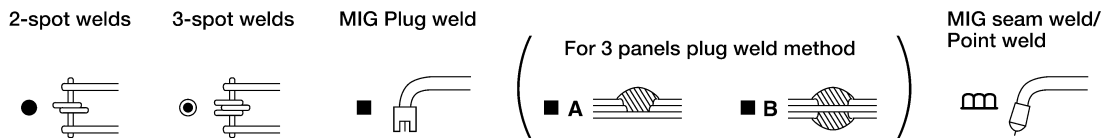
< ON-VEHICLE REPAIR >

Hoodledge

INFOID:000000001502390



Unit : mm



ALKIA0084GB

Change parts

- Front strut housing (LH)
- Upper front hoodledge
- Hoodledge reinforcement
- Hoodledge connector
- Radiator core support upper
- Hoodledge reinforcement rear

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

REPLACEMENT OPERATIONS

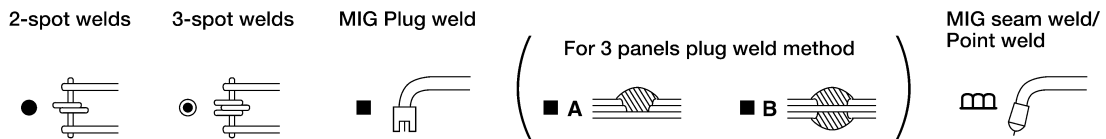
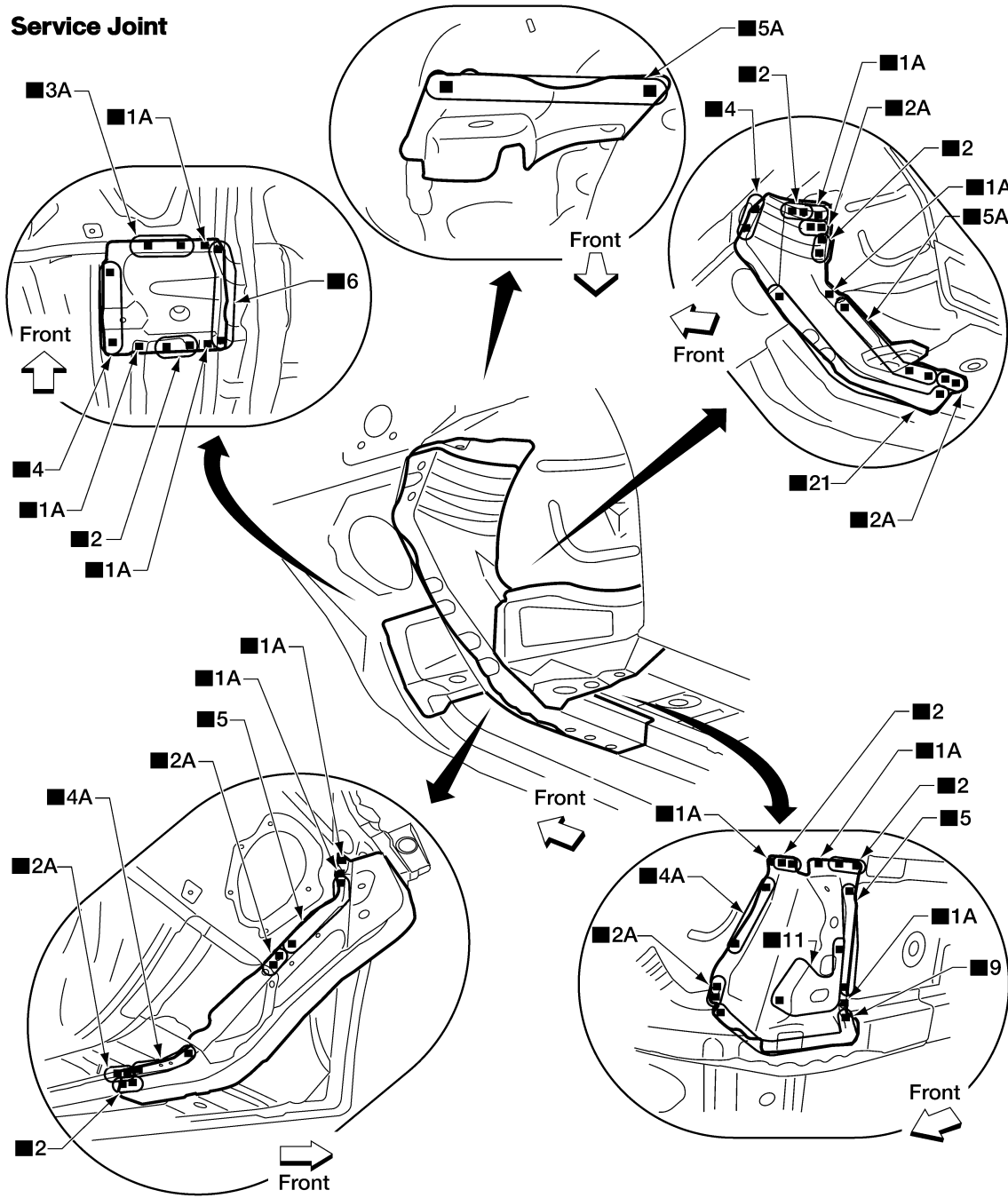
< ON-VEHICLE REPAIR >

Front Side Member

INFOID:000000001502391

- Work after hoodledge partial has been removed.

Service Joint



ALKIA0085GB

Change parts

- Front side member rear assembly
- Front side member rear reinforcement
- Front suspension member plate
- Front side member outrigger assembly
- Front side member rear closing plate assembly

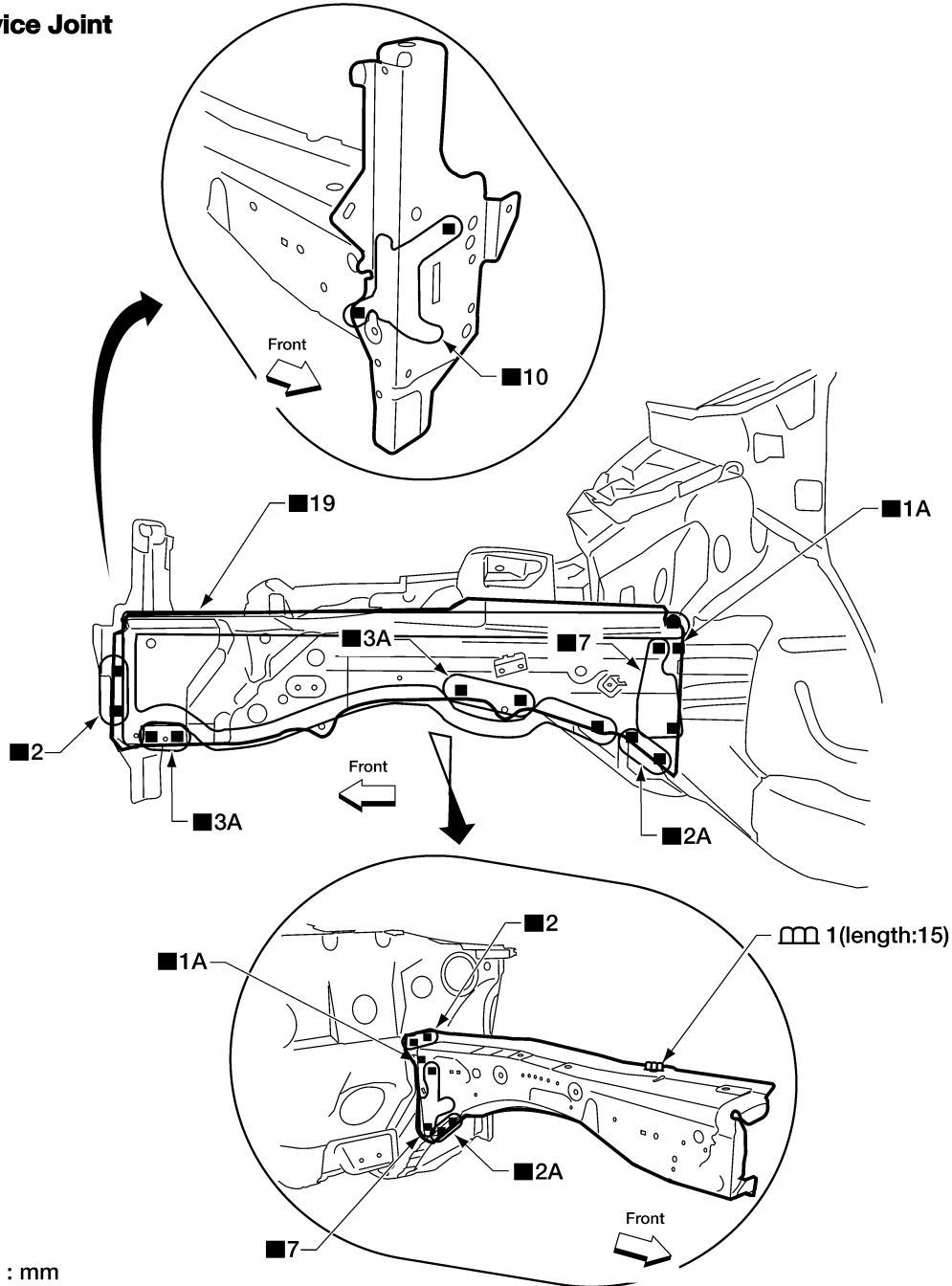
REPLACEMENT OPERATIONS

< ON-VEHICLE REPAIR >

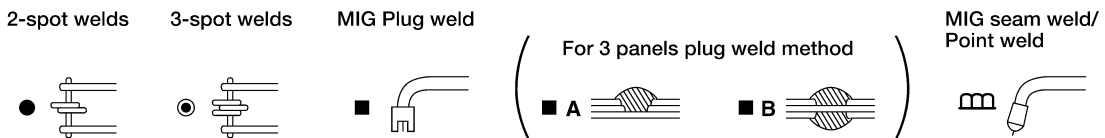
Front Side Member (Partial Replacement)

INFOID:000000001502392

Service Joint



Unit : mm



ALKIA0086GB

Change parts

- Front side member front assembly
- Front side member front closing plate
- Radiator core side support

Front Pillar

INFOID:000000001502393

OUTER

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

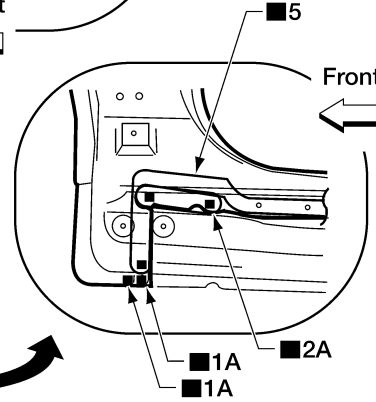
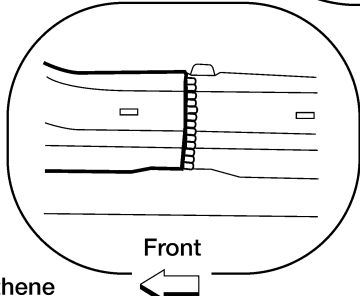
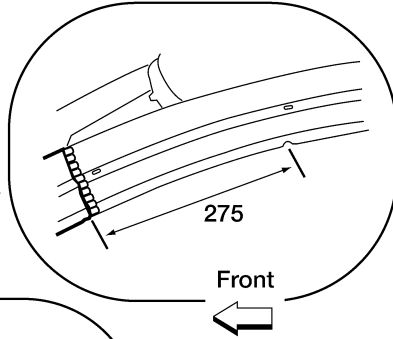
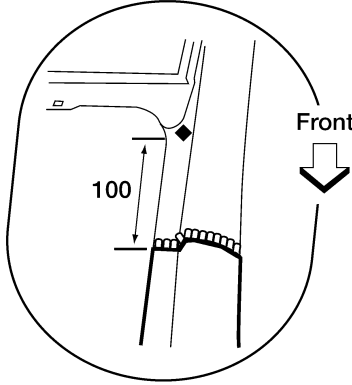
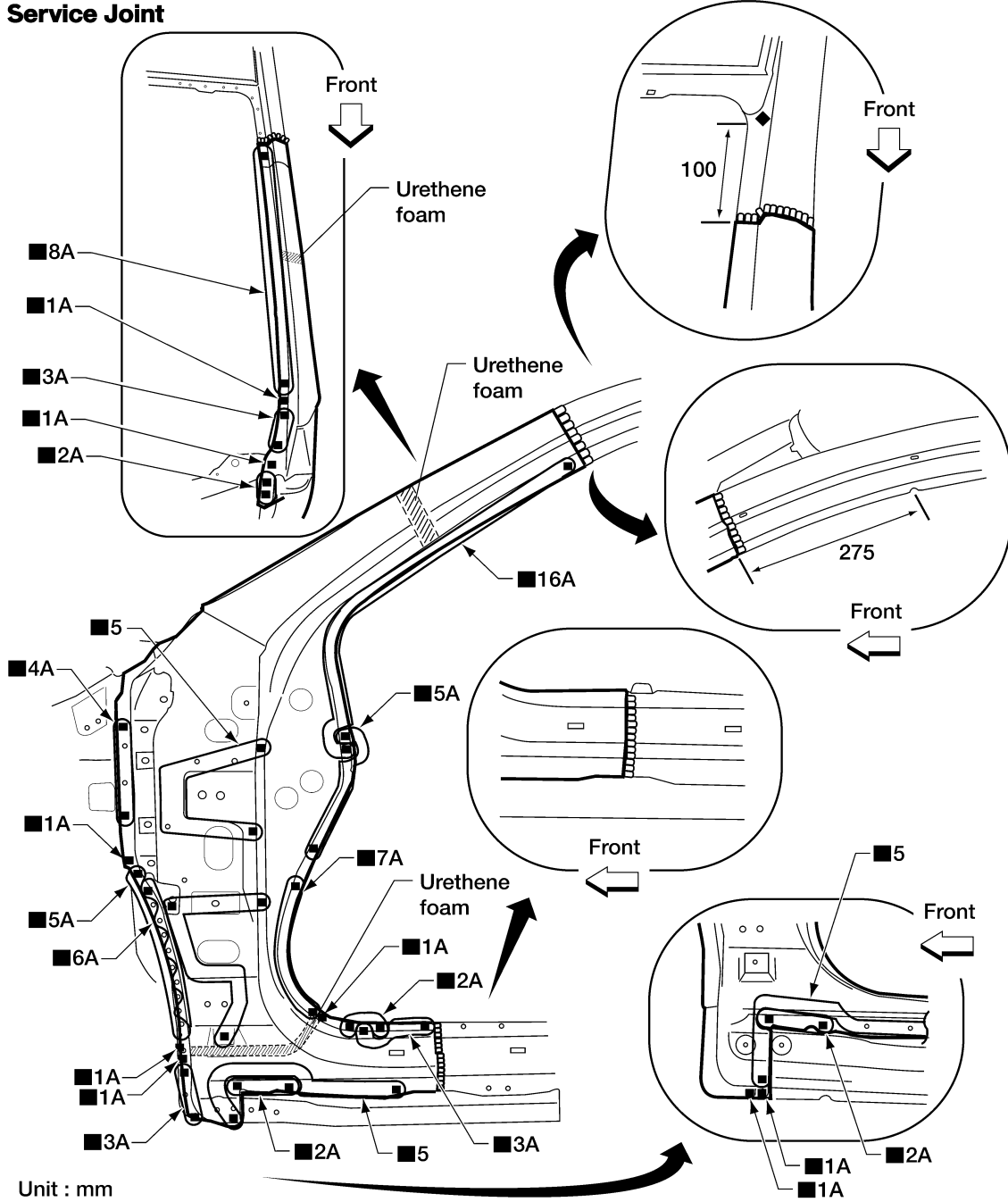
BRM

REPLACEMENT OPERATIONS

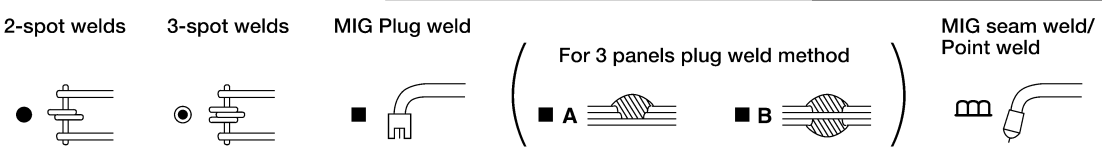
< ON-VEHICLE REPAIR >

- Work after hoodledge and hoodledge reinforcement rear has been removed.

Service Joint



Unit : mm



ALKIA0087GB

- Change parts
- Front pillar section of body side outer

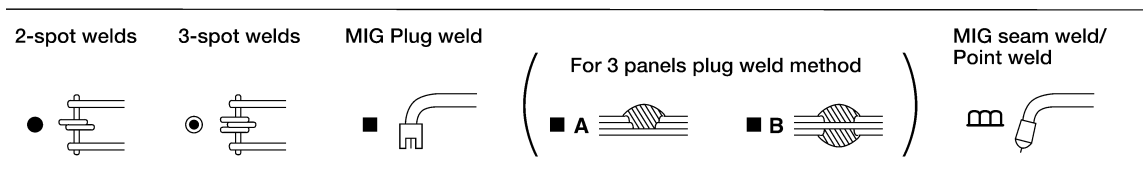
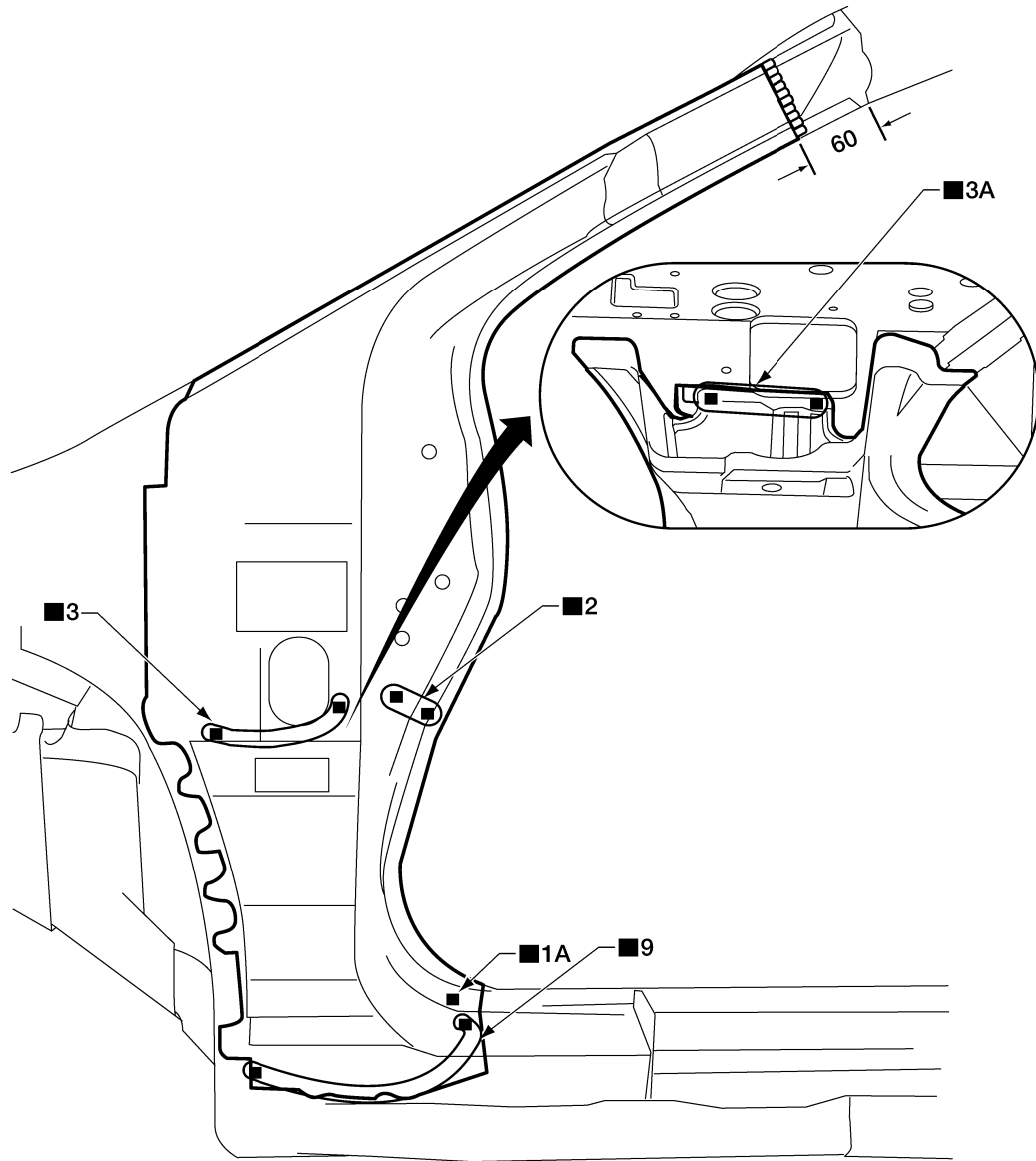
REINFORCEMENT

REPLACEMENT OPERATIONS

< ON-VEHICLE REPAIR >

- Work after front pillar outer has been removed.

Service Joint



ALKIA0088GB

Change parts

- Front pillar upper reinforcement
- Front pillar lower reinforcement

INNER

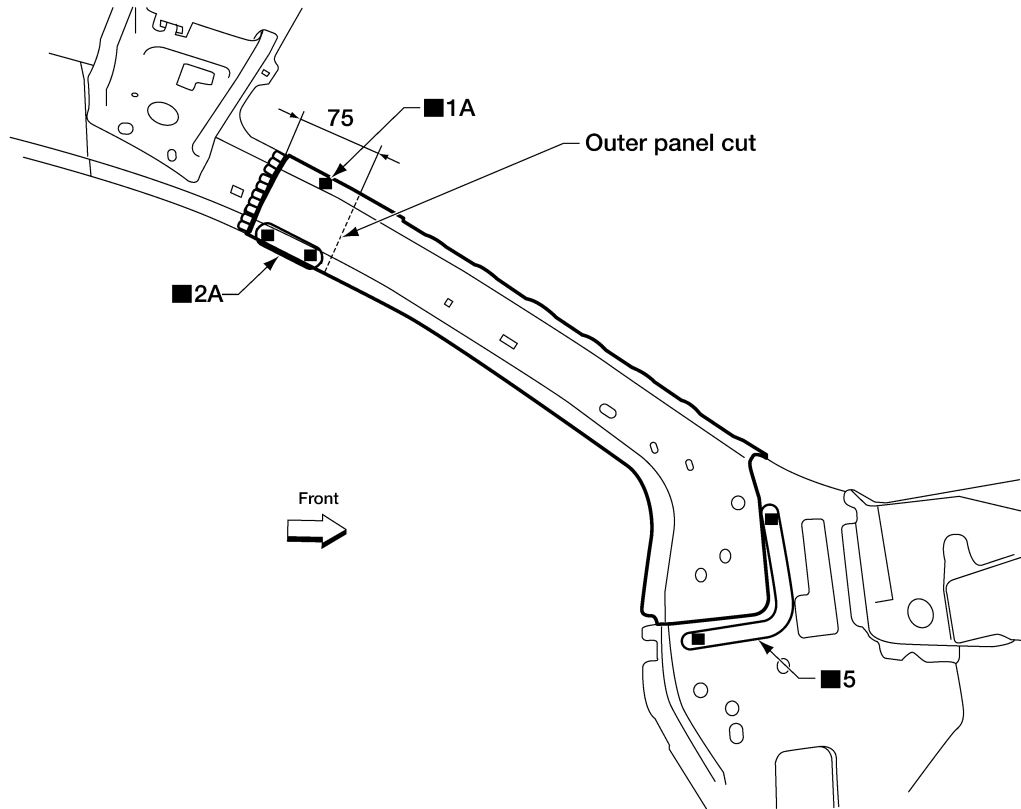
A
B
C
D
E
F
G
H
I
J
BRM
L
M
N
O
P

REPLACEMENT OPERATIONS

< ON-VEHICLE REPAIR >

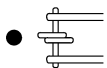
- Work after front pillar reinforcement has been removed.

Service Joint



Unit : mm

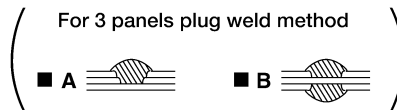
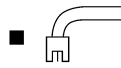
2-spot welds



3-spot welds



MIG Plug weld



MIG seam weld/
Point weld



ALKIA0089GB

Change parts

- Front pillar inner reinforcement

Dash Side

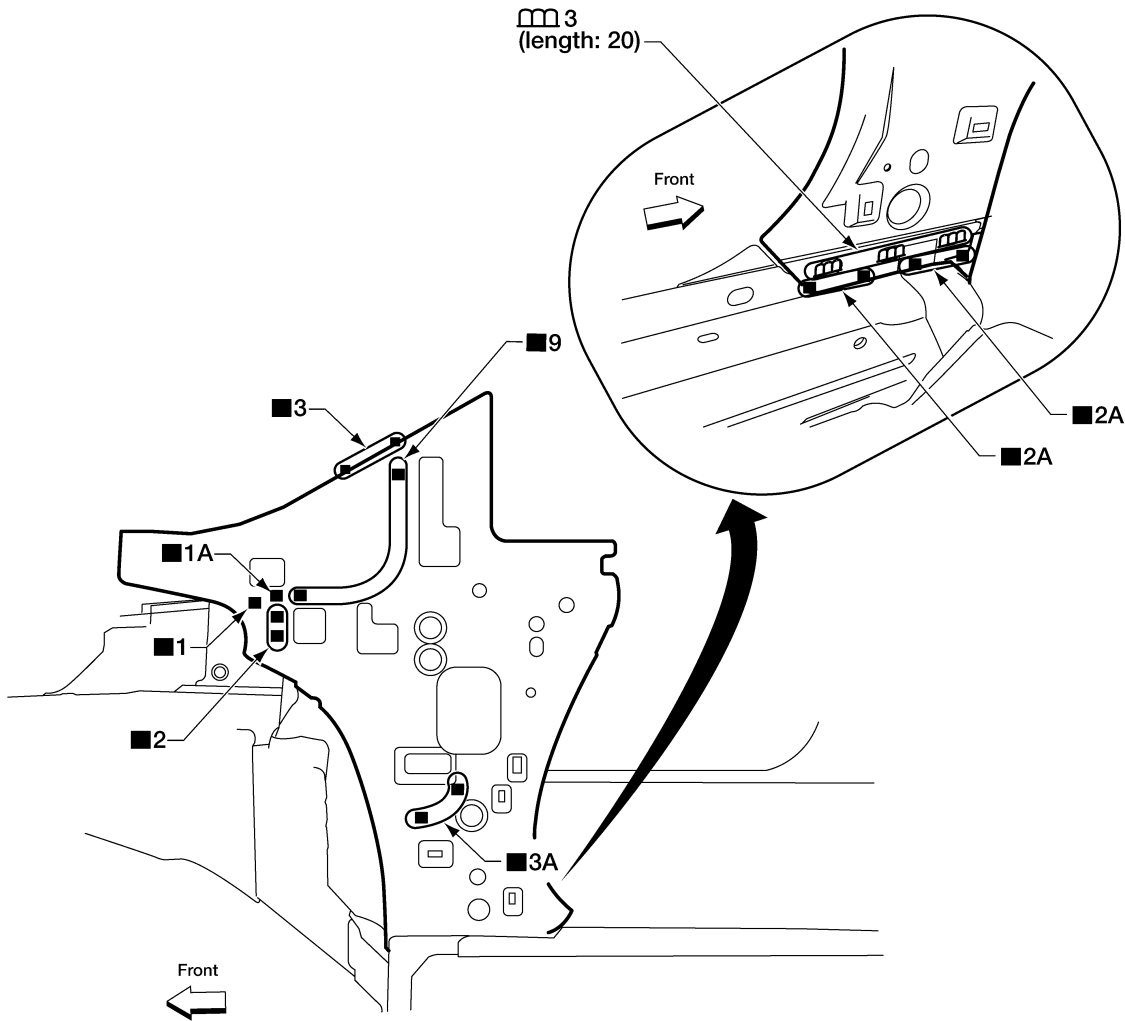
INFOID:000000001502394

Work with front pillar reinforcement removed.

REPLACEMENT OPERATIONS

< ON-VEHICLE REPAIR >

Service Joint

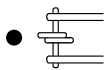


A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

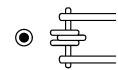
BRM

Unit : mm

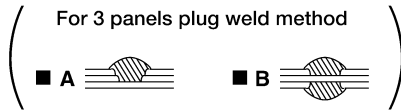
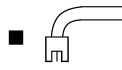
2-spot welds



3-spot welds



MIG Plug weld



MIG seam weld/
Point weld



- Change parts
- Dash side

ALKIA0091GB

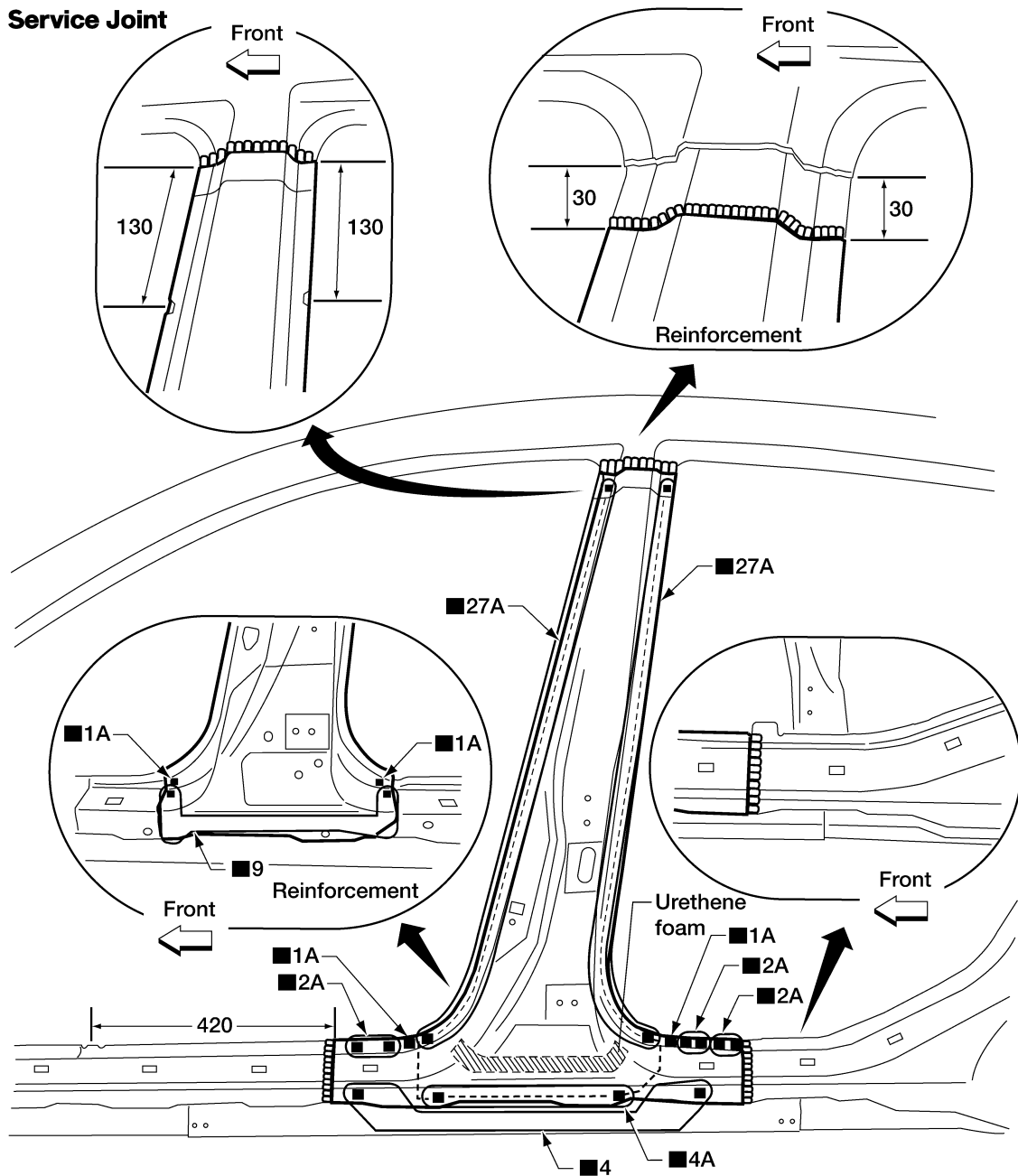
REPLACEMENT OPERATIONS

< ON-VEHICLE REPAIR >

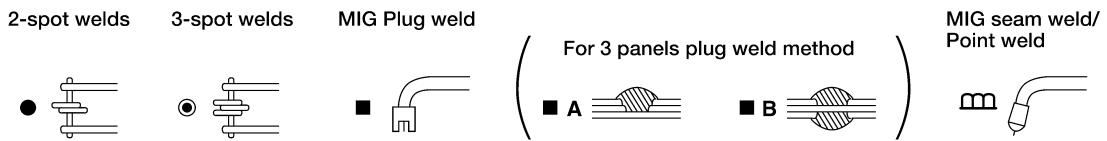
Center Pillar

INFOID:000000001502395

OUTER



Unit : mm



ALKIA0092GB

Change parts

- Center pillar portion of body side outer
- Center pillar reinforcement

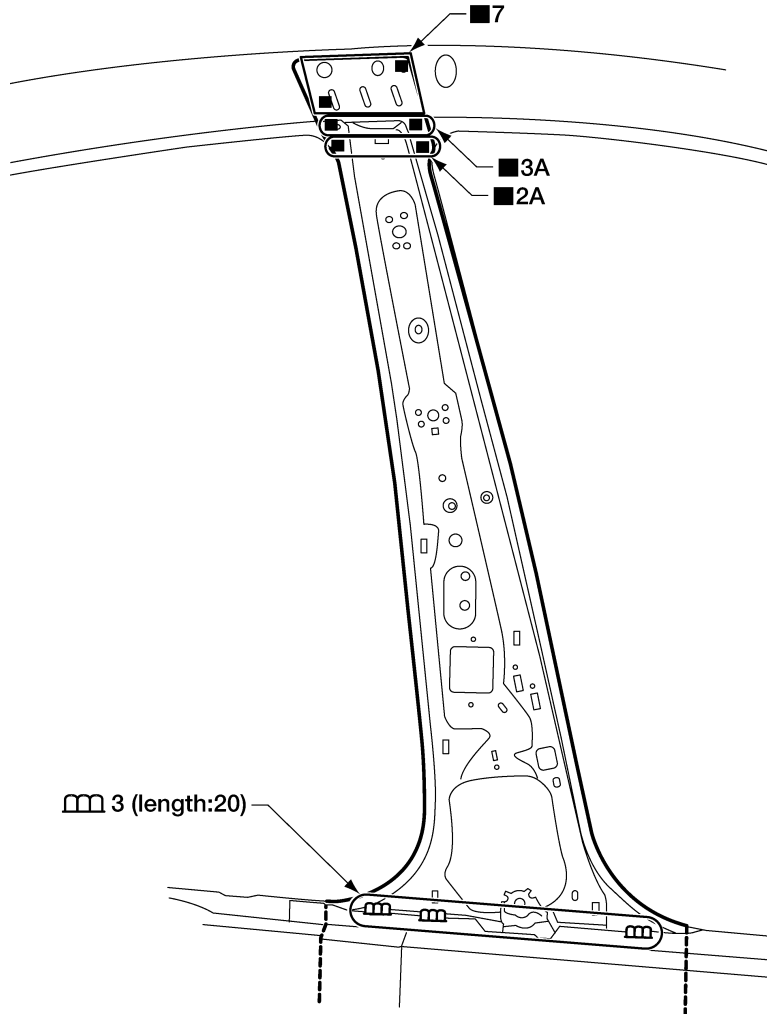
INNER

REPLACEMENT OPERATIONS

< ON-VEHICLE REPAIR >

Work after center pillar outer and outer sill have been removed.

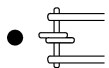
Service Joint



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

Unit : mm

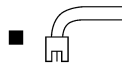
2-spot welds



3-spot welds



MIG Plug weld



For 3 panels plug weld method



MIG seam weld/
Point weld



ALKIA0093GB

Change parts

- Center pillar inner

REPLACEMENT OPERATIONS

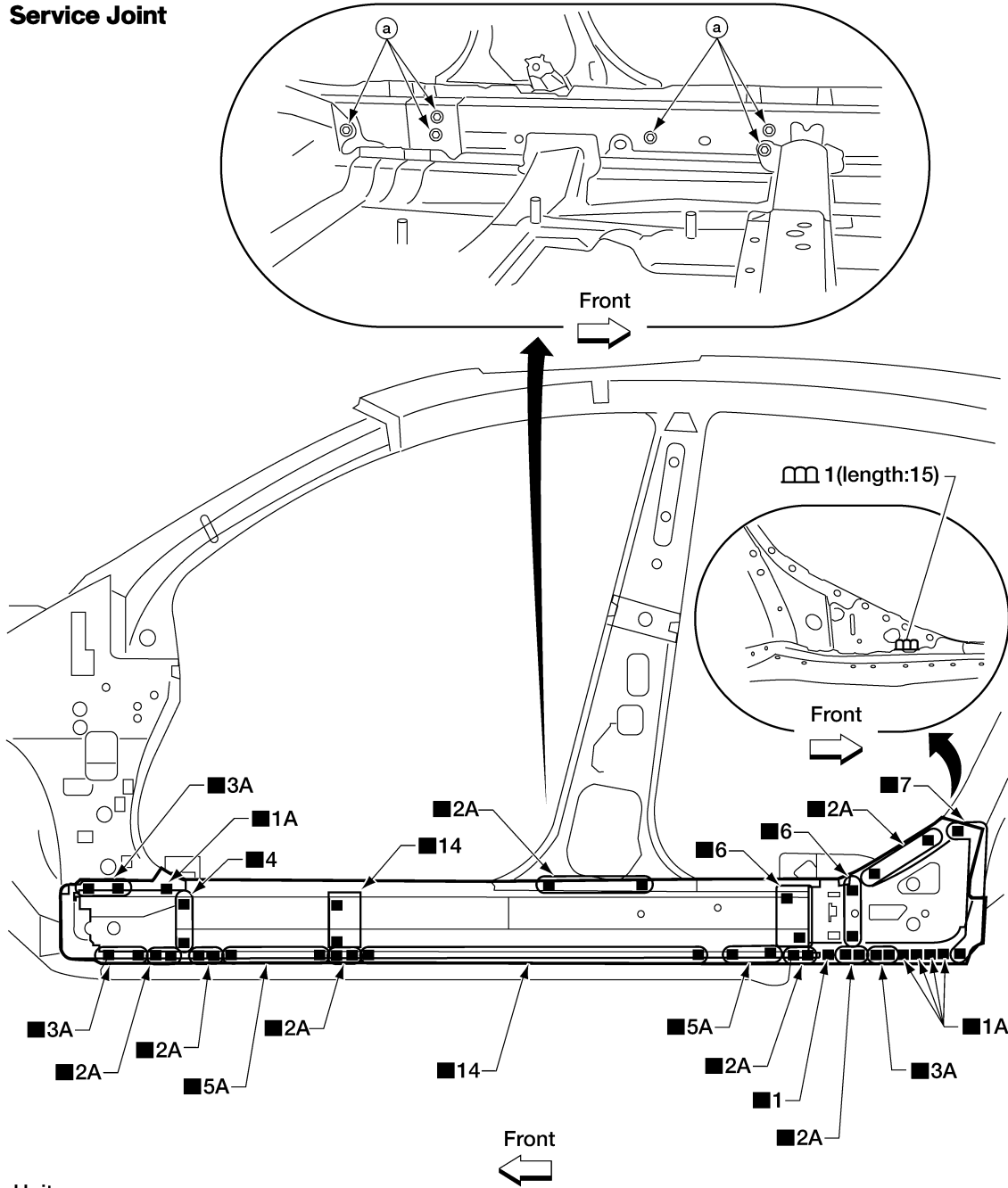
< ON-VEHICLE REPAIR >

Outer Sill

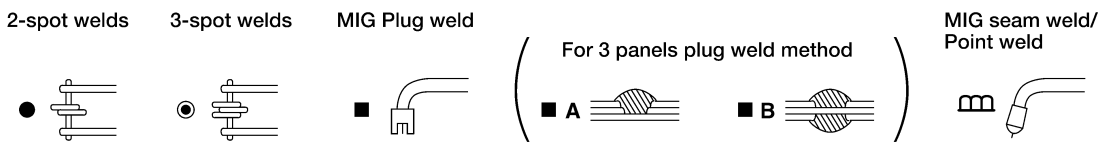
INFOID:000000001502396

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

Service Joint



Unit : mm



ALKIA0094GB

Change parts

- Outer sill reinforcement

A. 24Nm (2.4Kg-m, 18lb-ft)

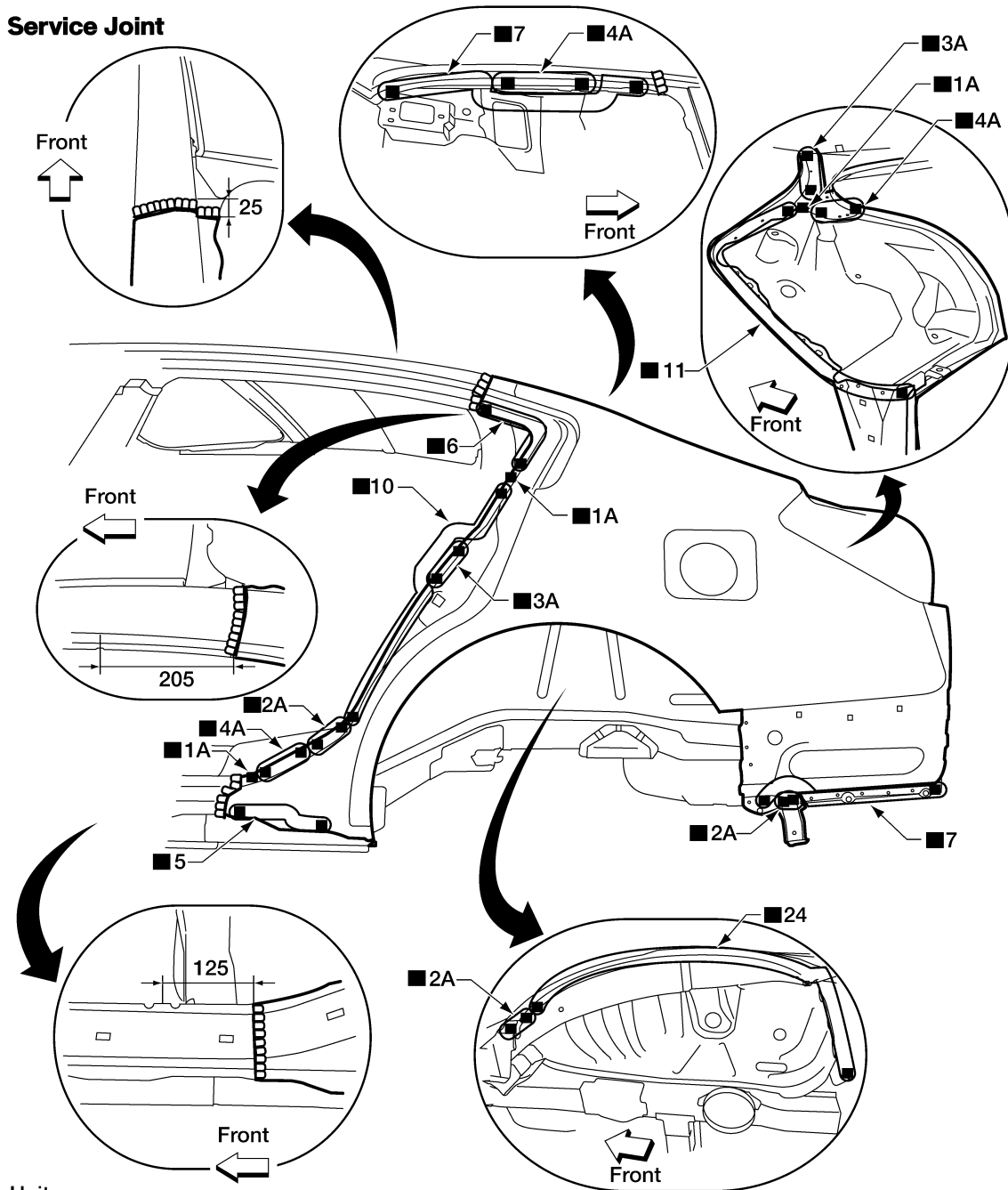
REPLACEMENT OPERATIONS

< ON-VEHICLE REPAIR >

Rear Fender

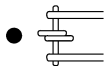
INFOID:000000001502397

Service Joint

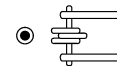


Unit : mm

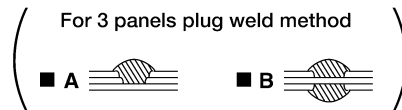
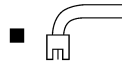
2-spot welds



3-spot welds



MIG Plug weld



MIG seam weld/
Point weld



Change parts

- Rear fender

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

BRM

ALKIA0095GB

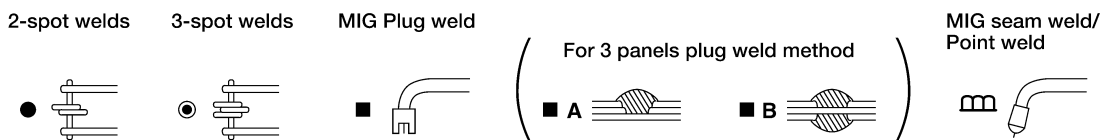
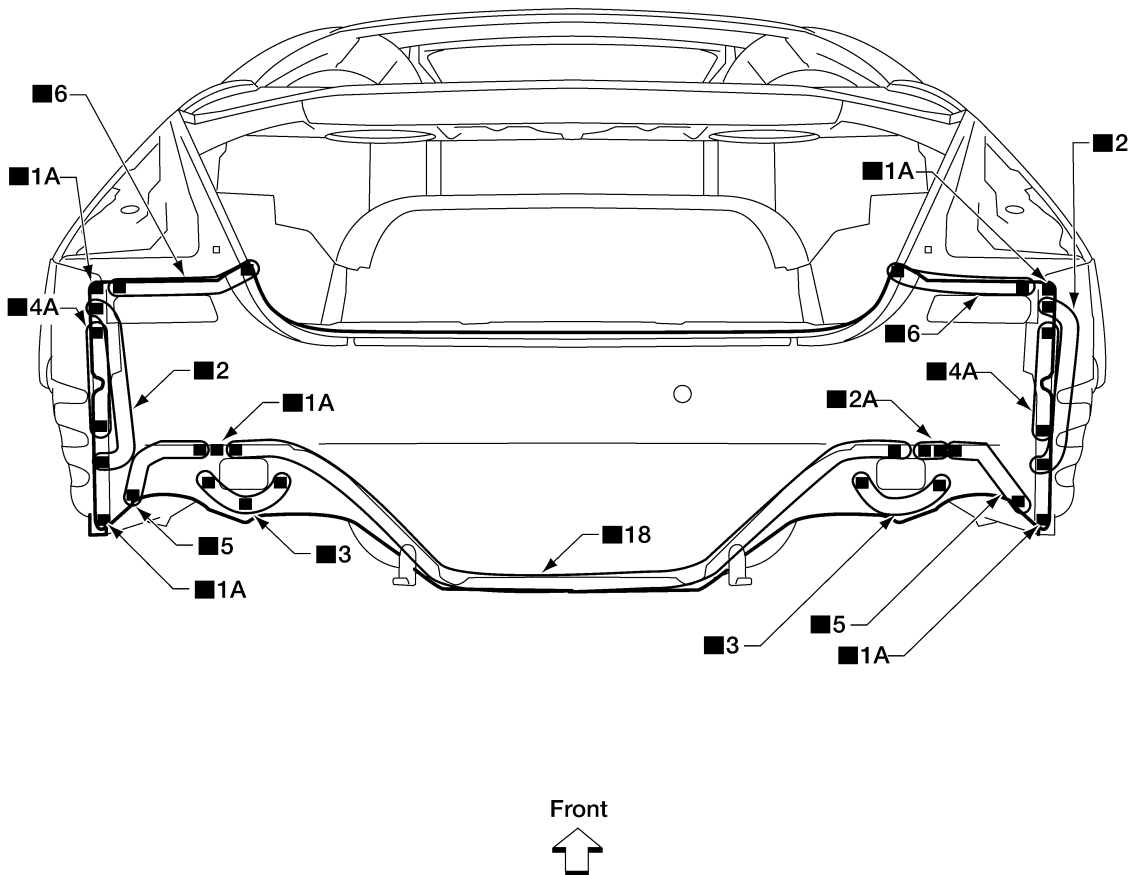
REPLACEMENT OPERATIONS

< ON-VEHICLE REPAIR >

Rear Panel

INFOID:000000001502398

Service Joint



ALKIA0096GB

Change parts

- Rear panel assembly

Rear Floor Rear

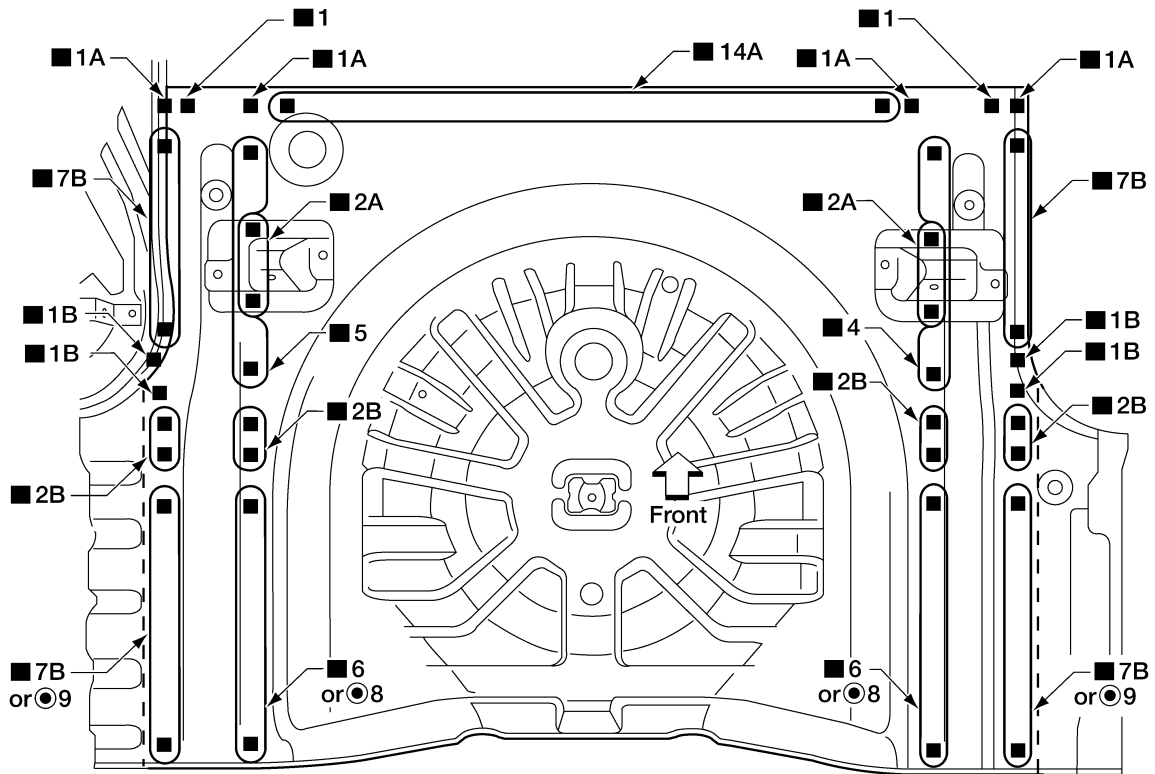
INFOID:000000001502399

- Work after rear panel assembly has been removed.

REPLACEMENT OPERATIONS

< ON-VEHICLE REPAIR >

Service Joint



A

B

C

D

E

F

G

H

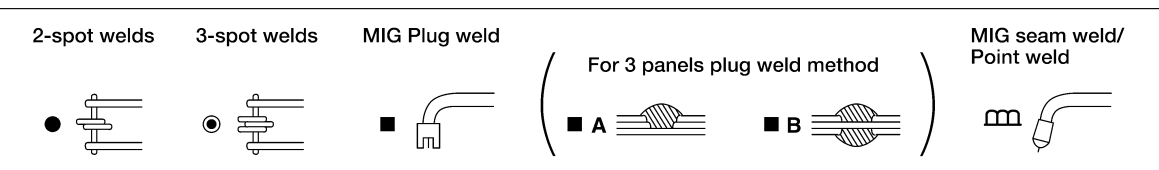
I

J

BRM

L

M



N

O

Change parts

- Rear floor rear

ALKIA0241GB

P

REPLACEMENT OPERATIONS

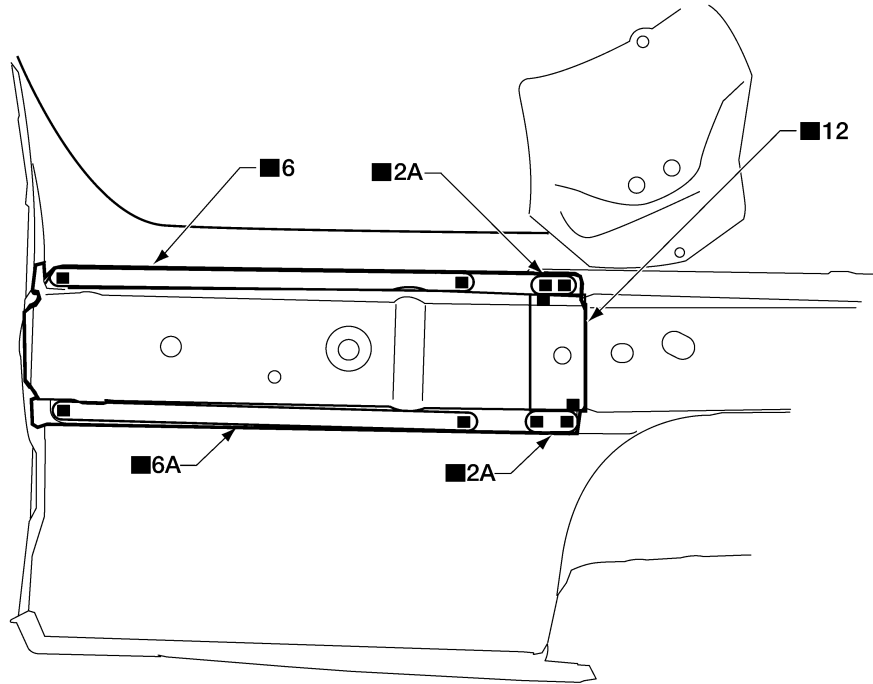
< ON-VEHICLE REPAIR >

Rear Side Member Extension

INFOID:000000001502400

- Work after rear panel assembly has been removed.

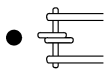
Service Joint



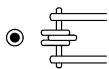
Front



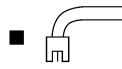
2-spot welds



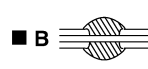
3-spot welds



MIG Plug weld



For 3 panels plug weld method



MIG seam weld/
Point weld



ALKIA0098GB

Change parts

- Rear side member extension

REPLACEMENT OPERATIONS

< ON-VEHICLE REPAIR >

Foam Repair

INFOID:000000001502401

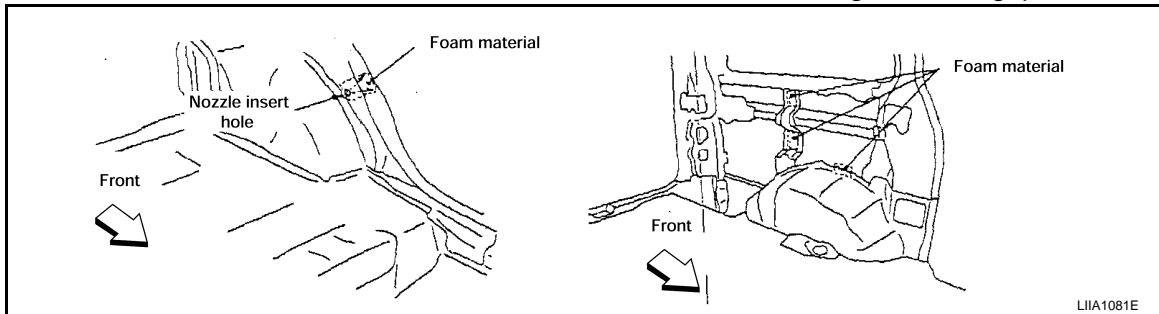
During factory assembly, foam insulators are installed in certain body panels and locations around the vehicle. Use the following procedure(s) to replace any factory-installed foam insulators.

URETHANE FOAM APPLICATIONS

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

FILL PROCEDURES

1. Fill procedures after installation service part.
 - Remove foam material remaining on vehicle side.
 - Clean area in which foam was removed.
 - Install service part.
 - Insert nozzle into hole near fill area and fill foam material or fill in enough to close gap with service part.



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

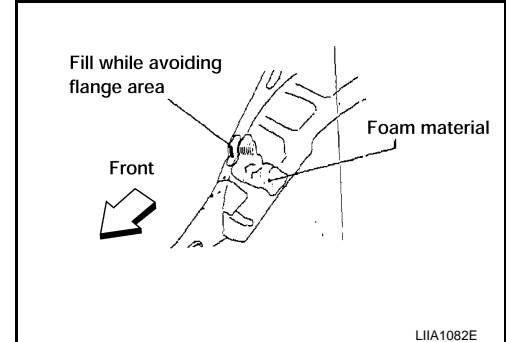
NOTE:

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

- Install service part.

NOTE:

Refer to label for information on working times.

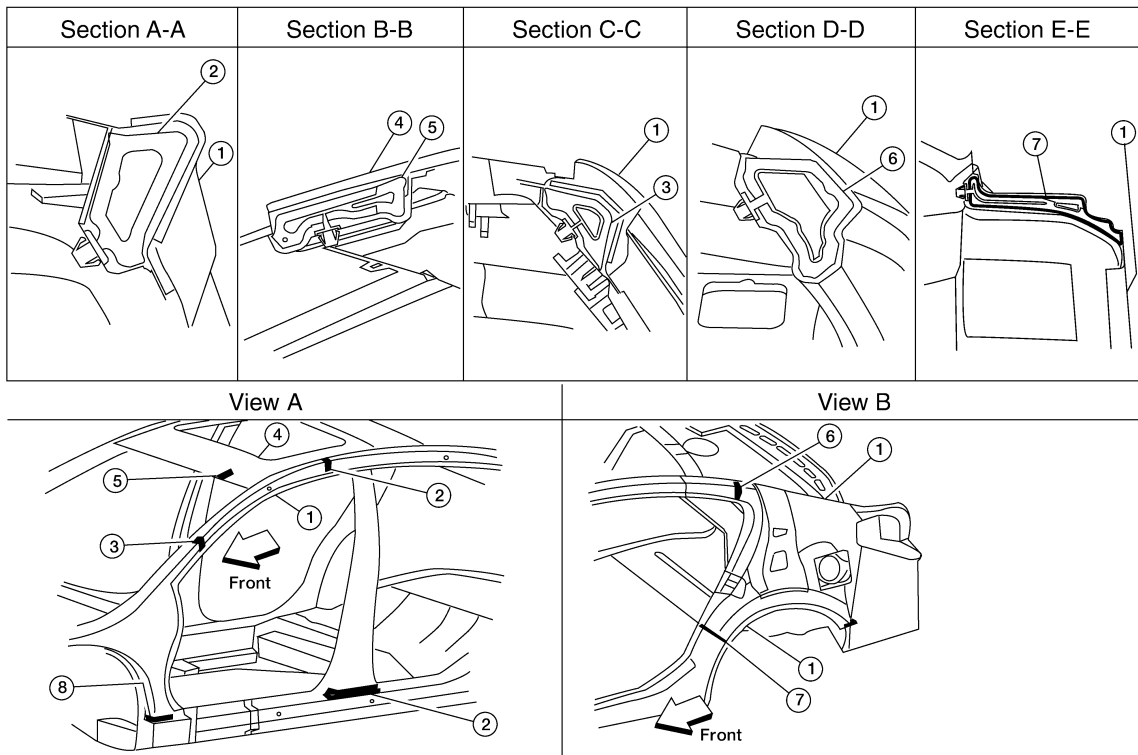
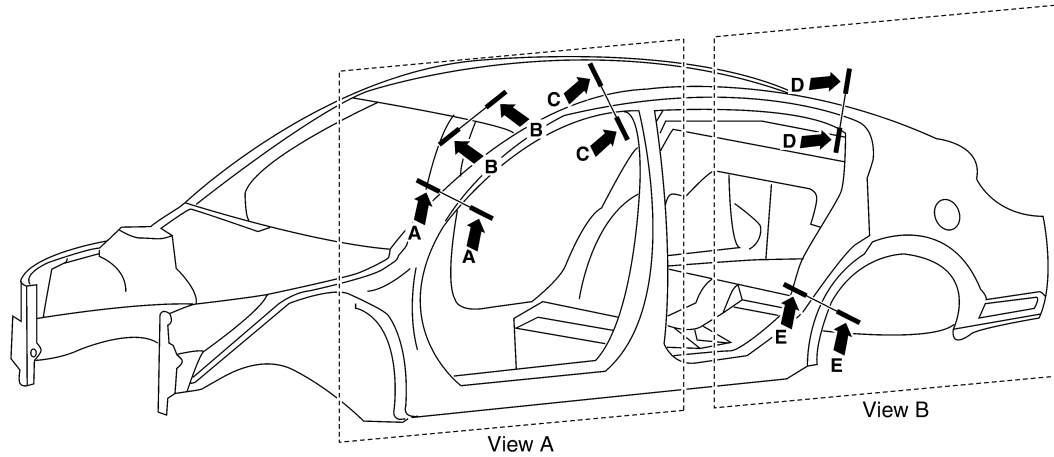


A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

BRM

REPLACEMENT OPERATIONS

< ON-VEHICLE REPAIR >



ALKIA0161GB

- | | | |
|--|---|--|
| 1. Body side outer | 2. Body side insulation (foam) upper front pillar | 3. Body side insulation (foam) front pillar |
| 4. Roof panel assembly | 5. Roof panel insulation (foam) front roof rail | 6. Body side insulation (foam) rear pillar |
| 7. Body side insulation (foam) rear pillar lower | 8. Body side insulation strip, front pillar lower reinforcement | 9. Body side insulation strip, center pillar reinforcement |