

SECTION **BRM**  
BODY REPAIR

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# PRECAUTIONS

< SERVICE INFORMATION >

## SERVICE INFORMATION

### PRECAUTIONS

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

INFOID:000000005550733

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. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. 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 3 minutes before performing any service.

#### Precaution Necessary for Steering Wheel Rotation After Battery Disconnect

INFOID:000000005550731

#### **NOTE:**

- This Procedure is applied only to models with Intelligent Key system and NATS (NISSAN ANTI-THEFT SYSTEM).
- Remove and install all control units after disconnecting both battery cables with the ignition knob in the "LOCK" position.
- Always use CONSULT-III to perform self-diagnosis as a part of each function inspection after finishing work. If DTC is detected, perform trouble diagnosis according to self-diagnostic results.

For models equipped with the Intelligent Key system and NATS, an electrically controlled steering lock mechanism is adopted on the key cylinder.

For this reason, if the battery is disconnected or if the battery is discharged, the steering wheel will lock and steering wheel rotation will become impossible.

If steering wheel rotation is required when battery power is interrupted, follow the procedure below before starting the repair operation.

#### OPERATION PROCEDURE

1. Connect both battery cables.

#### **NOTE:**

Supply power using jumper cables if battery is discharged.

2. Use the Intelligent Key or mechanical key to turn the ignition switch to the "ACC" position. At this time, the steering lock will be released.
3. Disconnect both battery cables. The steering lock will remain released and the steering wheel can be rotated.
4. Perform the necessary repair operation.

## PRECAUTIONS

### < SERVICE INFORMATION >

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5. When the repair work is completed, return the ignition switch to the "LOCK" position before connecting the battery cables. (At this time, the steering lock mechanism will engage.)
6. Perform a self-diagnosis check of all control units using CONSULT-III.

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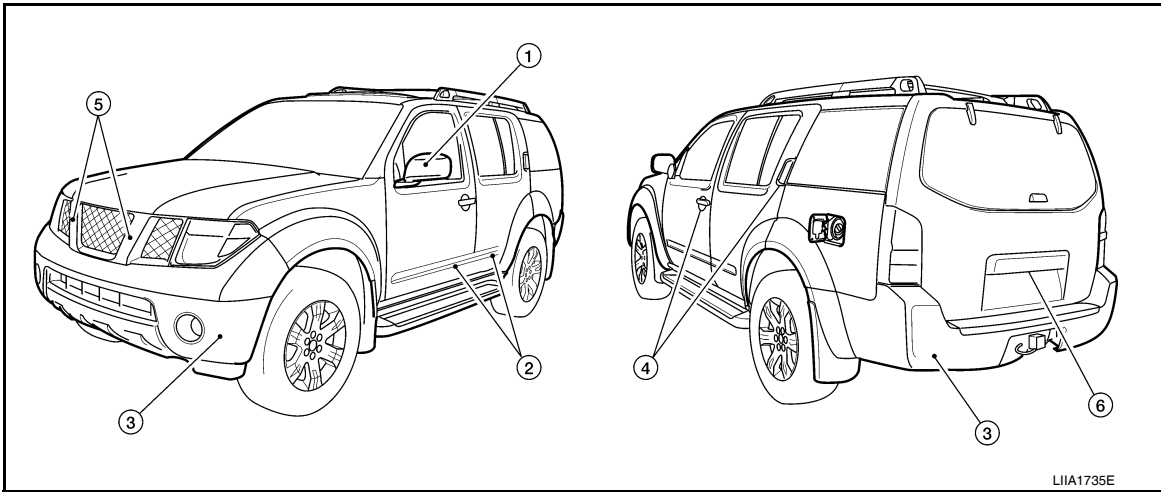
# BODY REPAIR

< SERVICE INFORMATION >

## BODY REPAIR

### Body Exterior Paint Color

INFOID:000000005259204



Component			Color code	NAC	RAB	K12	K50	KH3	QM1
			Description	Red Brick	Navy Blue	Silver Lightning	Dark Slate	Super Black	Avalanche
			Paint type	M	M	M	M	M	S
			Clear coat	t	t	t	t	t	t
1	Outside mirror	SE, SE-OR, LE	Body color	NAC	RAB	K12	K50	KH3	QM1
		S	Black	KH3	KH3	KH3	KH3	KH3	KH3
2	Side Guard Molding	SE	Body color	NAC	RAB	K12	K50	KH3	QM1
		LE	Chromium plate	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P
3	Bumpers	Fascias	Body color	NAC	RAB	K12	K50	KH3	QM1
4	Outside handles		Body color	NAC	RAB	K12	K50	KH3	QM1
5	Radiator grille	Frame and emblem	Chromium plate	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P
		Center	Black	KH3	KH3	KH3	KH3	KH3	KH3
6	License Lamp Finisher		Chromium plate	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P

M: Metallic; S: 1-Coat Solid; 2S: 2-Coat Solid, 2P: 2-Coat Pearl; PM: Pearl + Metallic; P: Pearl; t: Cross-linked clearcoat

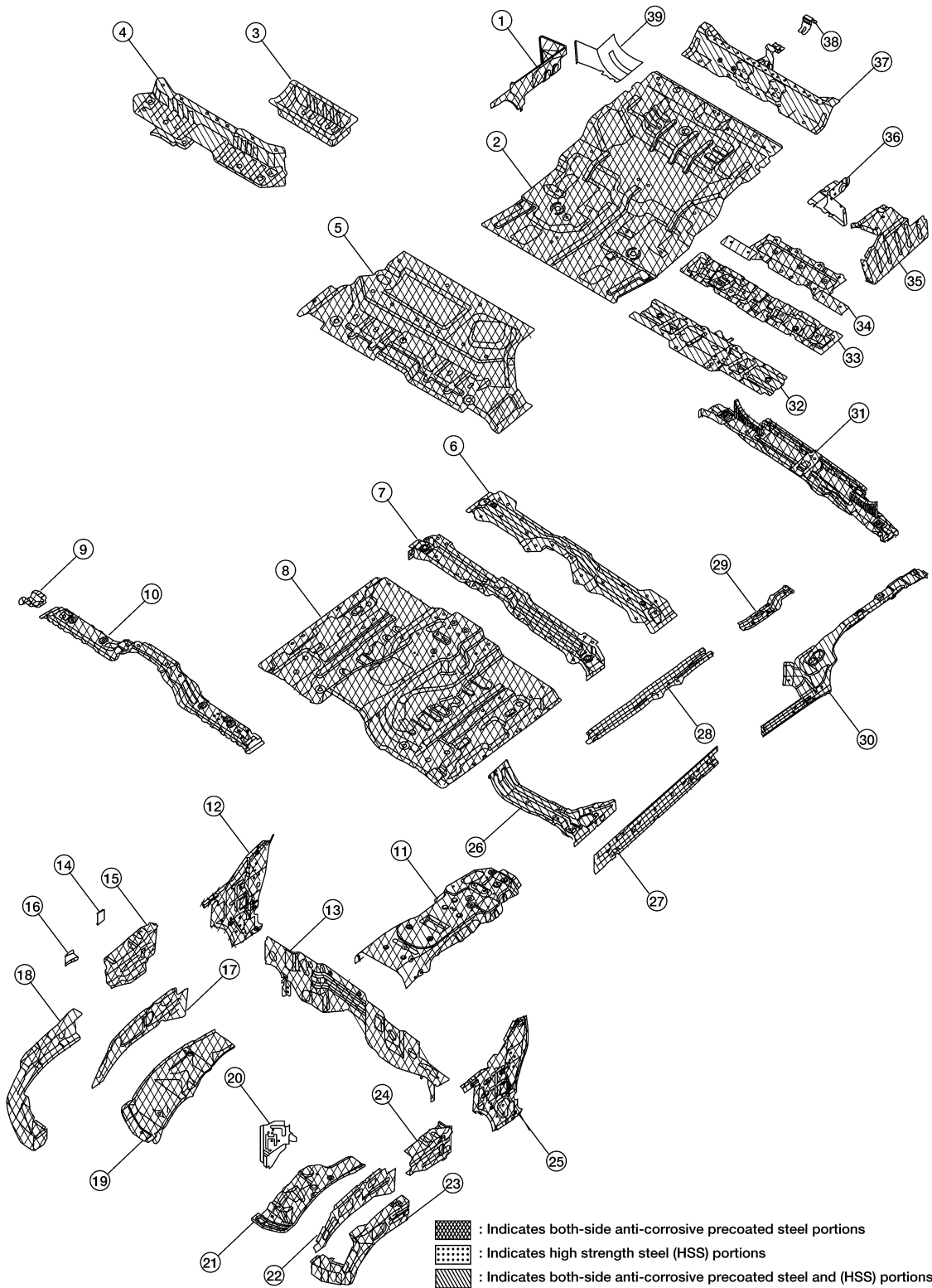
# BODY REPAIR

< SERVICE INFORMATION >

## Body Component Parts

INFOID:00000005259205

### UNDERBODY COMPONENT PARTS



1. Rear floor side RH
2. Rear floor
3. Storage bin
4. Second seat mounting crossmember

Revision: July 2009

**BRM-5**

2010 Pathfinder

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## BODY REPAIR

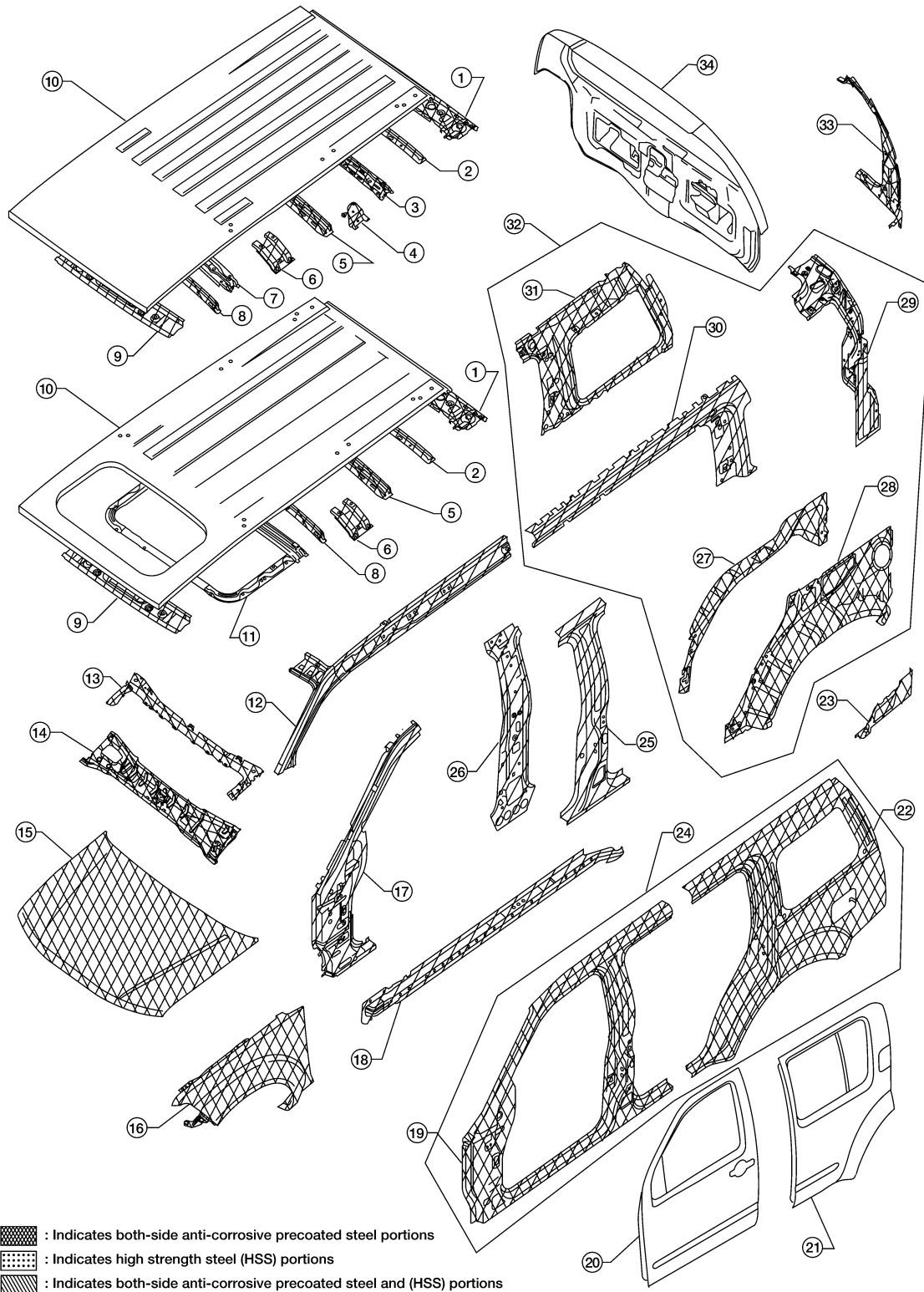
### < SERVICE INFORMATION >

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5. Rear floor front
6. Center pillar crossmember assembly
7. Front seat mounting rear crossmember
8. Front floor
9. Front seat mounting crossmember
10. Second crossmember extension
11. Front floor reinforcement
12. Side dash RH
13. Lower dash
14. Wash tank bracket
15. Hoodledge reinforcement RH
16. Hoodledge plate
17. Hoodledge RH
18. Hoodledge reinforcement assembly RH
19. Rear lower hoodledge RH
20. Battery tray
21. Rear lower hoodledge LH
22. Hoodledge LH
23. Hoodledge reinforcement assembly LH
24. Hoodledge reinforcement LH
25. Side dash LH
26. Second crossmember assembly (RH/LH)
27. Inner sill (RH/LH)
28. Front side member assembly (RH/LH)
29. Center floor member assembly
30. Rear side member rear (RH/LH)
31. Rear crossmember
32. Second seat mounting crossmember
33. Third seat mounting bracket assembly
34. Rope hook bracket
35. Rear floor side LH
36. Rear floor side upper extension assembly LH
37. Third seat mounting rear crossmember assembly
38. Trim mounting bracket
39. Rear floor side upper extension assembly RH

# BODY REPAIR

## < SERVICE INFORMATION > BODY COMPONENT PARTS



1. Rear roof rail
2. Roof bow No 5
3. Roof 4th bow
4. Roof rack plate

## BODY REPAIR

### < SERVICE INFORMATION >

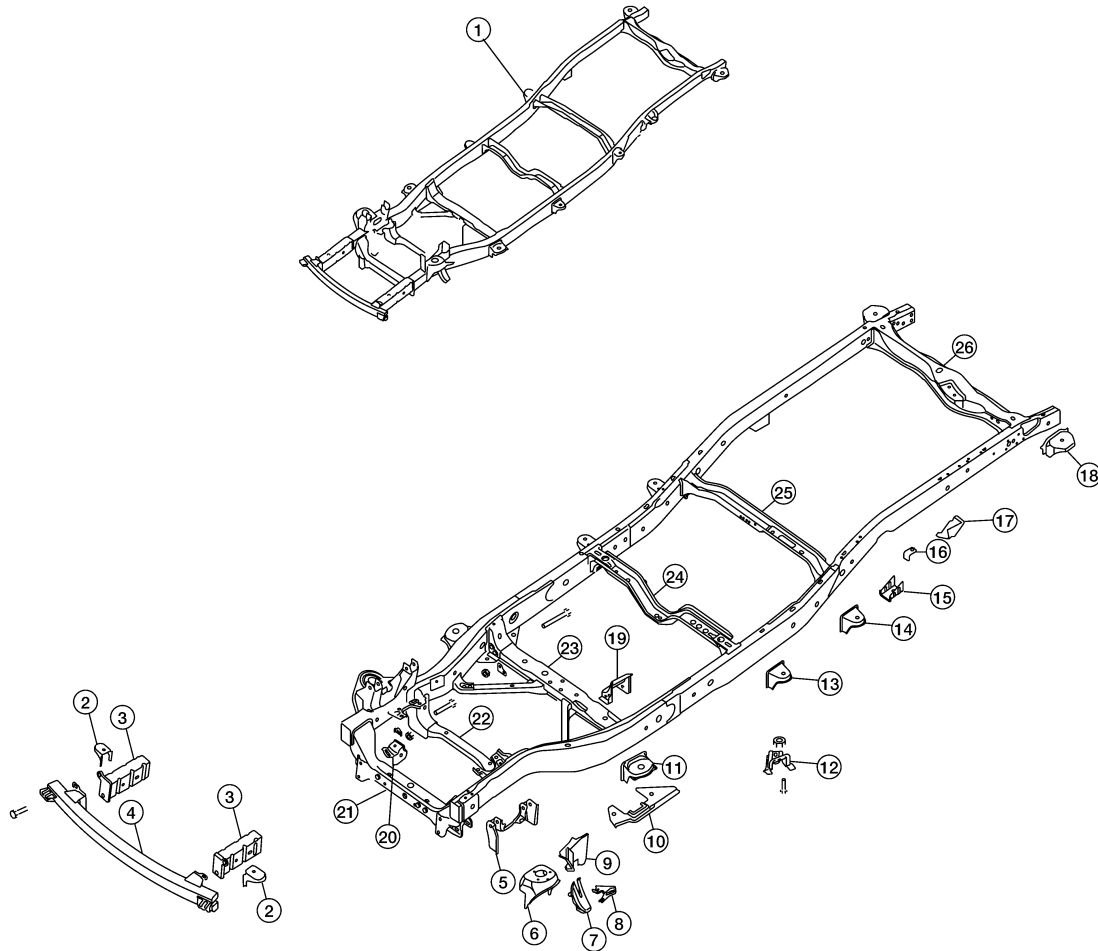
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5. Roof 3rd bow
6. Roof bow second bracket
7. Roof 2nd bow
8. Roof 1st bow
9. Front roof rail
10. Roof
11. Sunroof reinforcement
12. Front inner pillar upper (RH, LH)
13. Dash upper crossmember assembly
14. Dash upper assembly
15. Hood assembly
16. Front fender (RH, LH)
17. Front pillar hinge brace (RH, LH)
18. Outer sill reinforcement (RH, LH)
19. Front body side outer (RH, LH)
20. Front door assembly (RH, LH)
21. Rear door assembly (RH, LH)
22. Rear body side outer (RH, LH)
23. Rear fender extension RH/LH
24. Body side outer assembly
25. Center pillar hinge brace
26. Center inner pillar (RH, LH)
27. Rear wheel housing inner (RH, LH)
28. Rear wheel housing outer (RH, LH)
29. Back pillar reinforcement (RH, LH)
30. Outer roof side rail reinforcement (RH/LH)
31. Rear inner side panel (RH, LH)
32. Body side inner reinforcement assembly (RH, LH)
33. Main back pillar (RH, LH)
34. Lift gate assembly



# BODY REPAIR

## < SERVICE INFORMATION > FRAME COMPONENT PARTS



1. Frame assembly
2. 1st cab mounting bracket RH/LH
3. Front side member extension assembly RH/LH
4. 1st crossmember assembly
5. Front upper link mounting bracket RH/LH

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# BODY REPAIR

## < SERVICE INFORMATION >

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6. Front shock absorber mounting bracket RH/LH
7. Bound bumper bracket RH/LH
8. Front brake hose bracket RH/LH
9. Panhard rod bracket reinforcement
10. 4th crossmember gusset RH/LH
11. 2nd cab mounting bracket RH/LH
12. Crossmember support RH/LH
13. 3rd cab mounting bracket RH/LH
14. 4th cab mounting bracket RH/LH
15. Rear suspension mounting bracket RH/LH
16. Rear brake hose bracket
17. Rear bound bumper bracket RH/LH
18. Cab mounting bracket assembly RH/LH
19. 4th crossmember gusset RH/LH
20. Front differential mounting bracket RH/LH
21. 2nd crossmember assembly
22. 3rd crossmember assembly
23. 4th crossmember assembly
24. 5th crossmember assembly
25. 6th crossmember assembly
26. 9th crossmember assembly

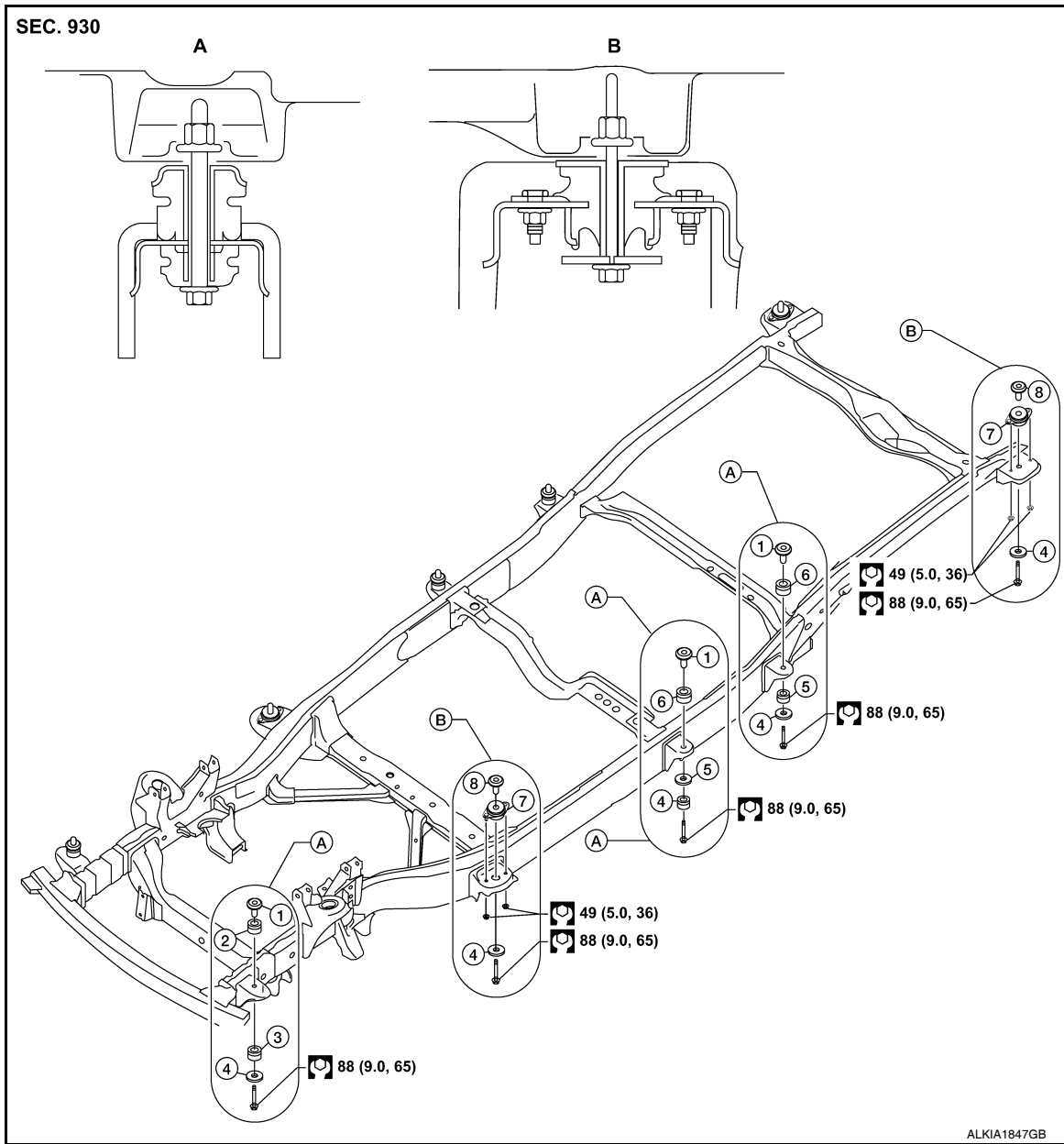
### Body Mounting

INFOID:000000005259206

- When removing, be sure to replace bolts and nuts (sealant applied bolts or self-lock nuts are used for all mounting).
- Unless otherwise noted, the bushings and insulators have paint marks that are to be installed facing outward.

# BODY REPAIR

< SERVICE INFORMATION >



- |                         |                                     |                                     |
|-------------------------|-------------------------------------|-------------------------------------|
| 1. Gold washer          | 2. Upper bushing                    | 3. Lower bushing                    |
| 4. Black washer         | 5. Lower bushing without paint mark | 6. Upper bushing without paint mark |
| 7. Body mount insulator | 8. Body washer                      |                                     |

## Corrosion Protection

INFOID:000000005259207

### DESCRIPTION

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)

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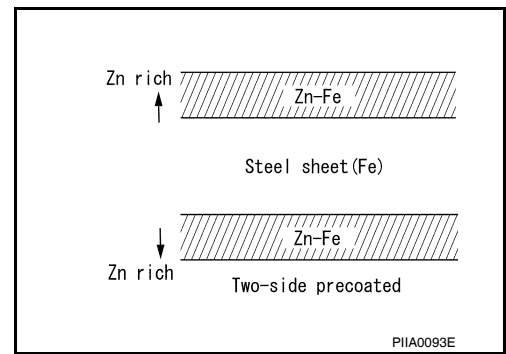
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# BODY REPAIR

## < SERVICE INFORMATION >

To improve repairability and corrosion resistance, a new type of anti-corrosive pre-coated 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 electrode position primer.



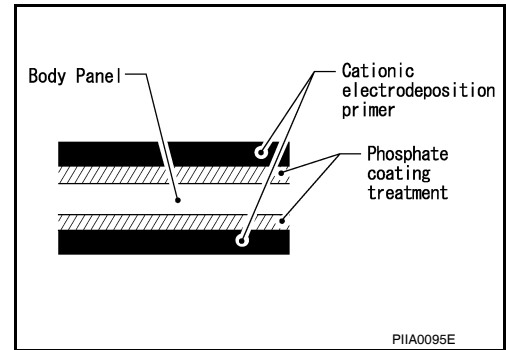
Nissan Genuine Service Parts are fabricated from galvannealed steel. Therefore, it is recommended that GENUINE NISSAN PARTS or equivalent be used for panel replacement to maintain the anti-corrosive performance built into the vehicle at the factory.

### PHOSPHATE COATING TREATMENT AND CATIONIC ELECTRODEPOSITION PRIMER

A phosphate coating treatment and a cationic electrode position 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.

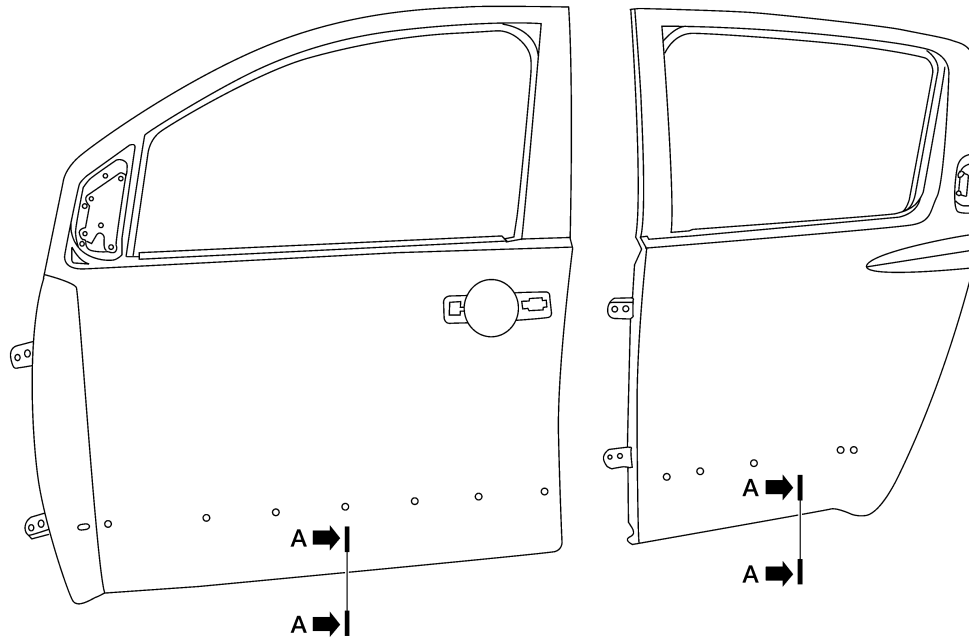
### ANTI-CORROSIVE WAX



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

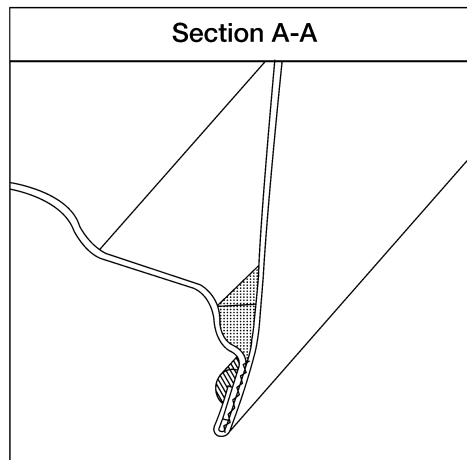
# BODY REPAIR

## < SERVICE INFORMATION >

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



-  : Indicates outside body sealant
-  : Indicates anti-corrosive wax coated portions



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## 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.

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
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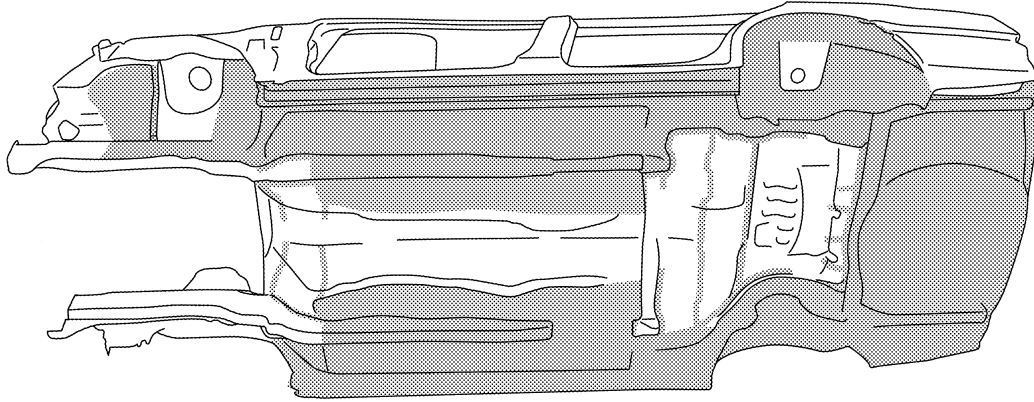
# BODY REPAIR

## < SERVICE INFORMATION >

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4. Apply bitumen wax after applying undercoating.

 : Indicates undercoated portions.



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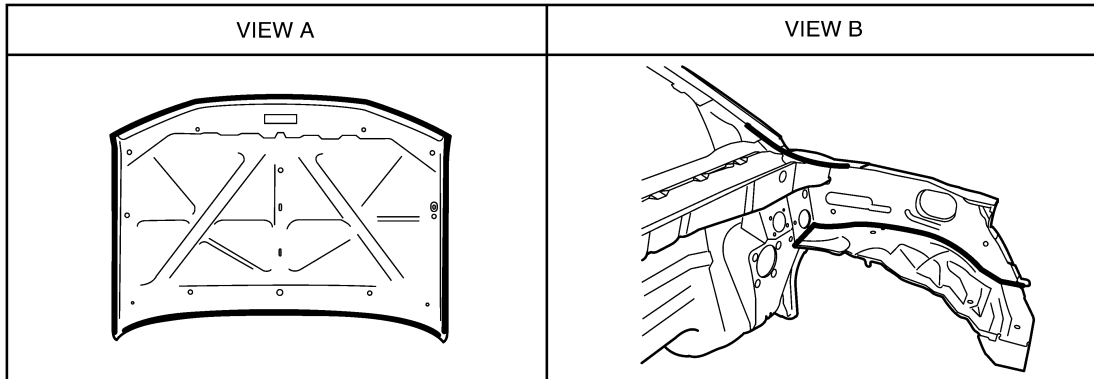
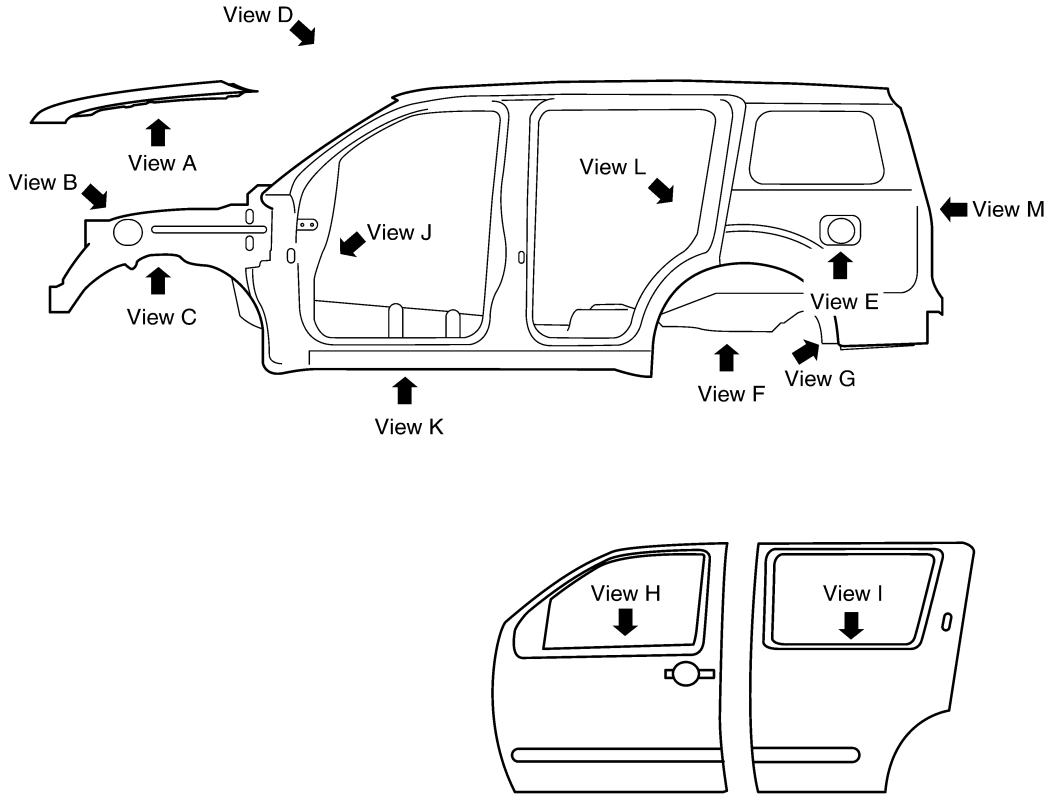
Body Sealing

DESCRIPTION

# BODY REPAIR

## < SERVICE INFORMATION >

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



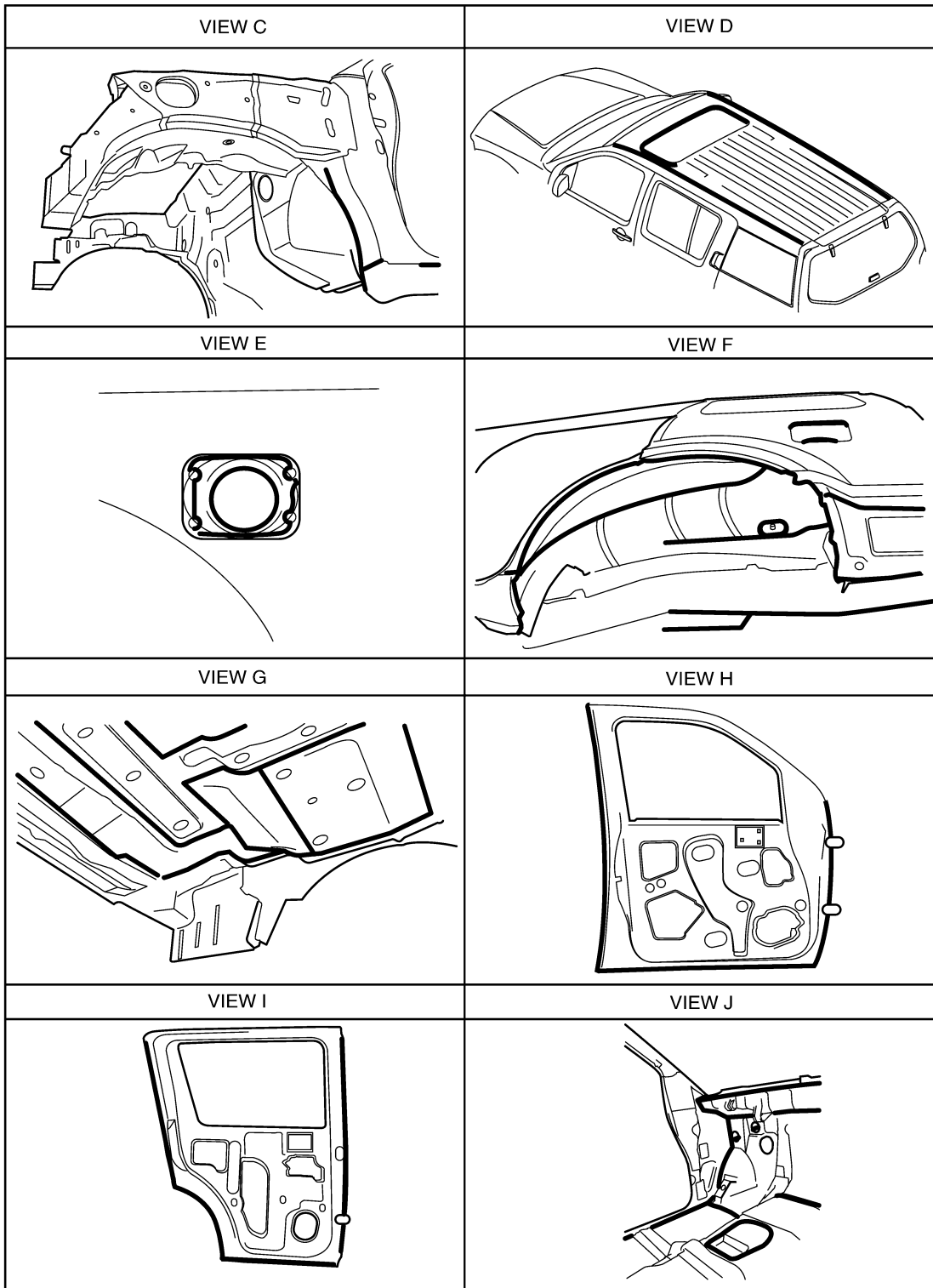
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# BODY REPAIR

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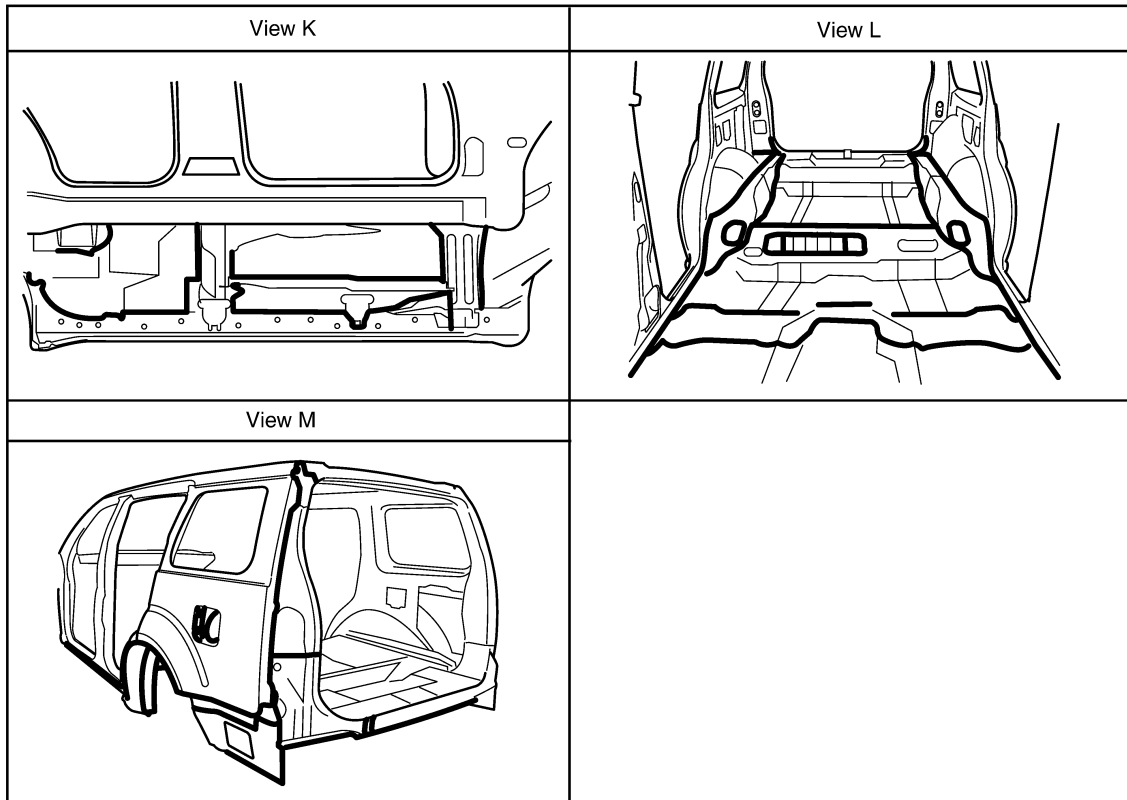


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# BODY REPAIR

< SERVICE INFORMATION >



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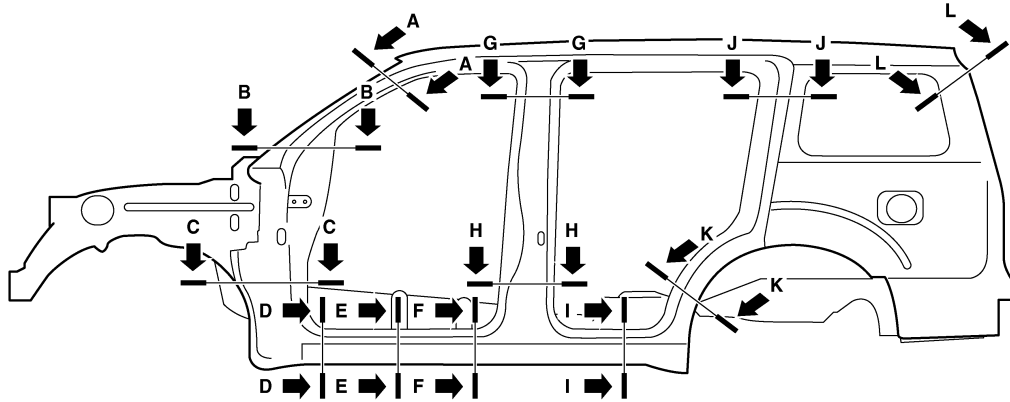
# BODY REPAIR

< SERVICE INFORMATION >

## Body Construction

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### BODY CONSTRUCTION



Section A-A	Section B-B	Section C-C	Section D-D

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## Body Alignment

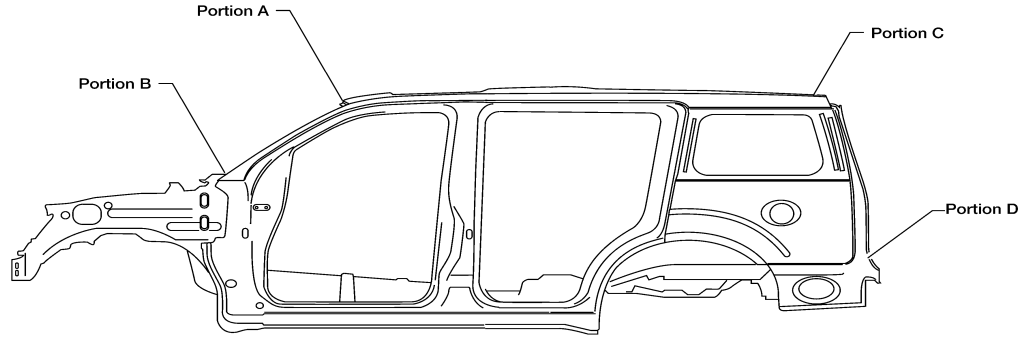
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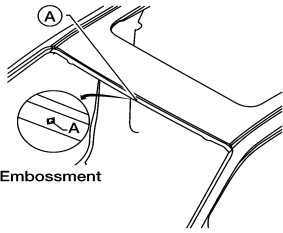
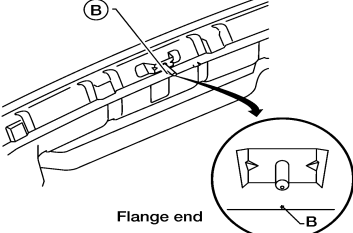
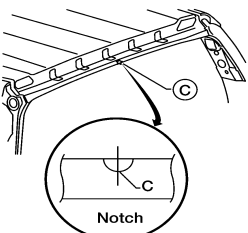
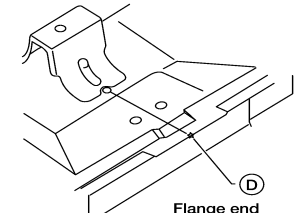
### BODY CENTER MARKS

# BODY REPAIR

## < SERVICE INFORMATION >

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.



Portion A	Portion B	Portion C
 <p>Embossment</p>	 <p>Flange end</p>	 <p>Notch</p>
 <p>Flange end</p>		

## PANEL PARTS MATCHING MARKS

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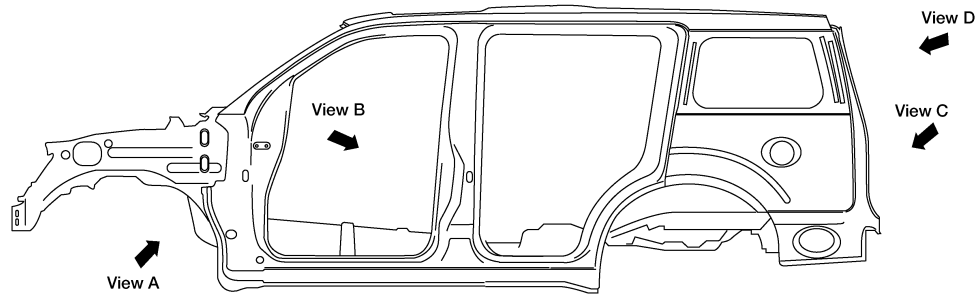
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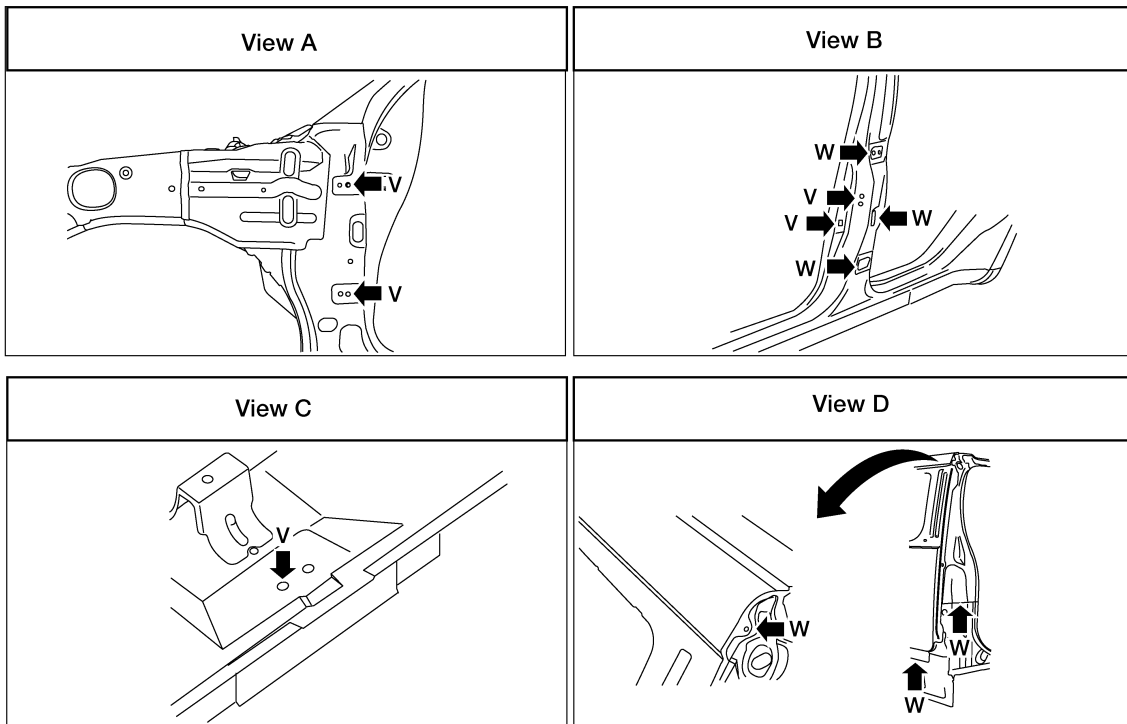
# BODY REPAIR

## < SERVICE INFORMATION >

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.



Type V: ○ ----- □ □  
 Type W: ● ----- □ □



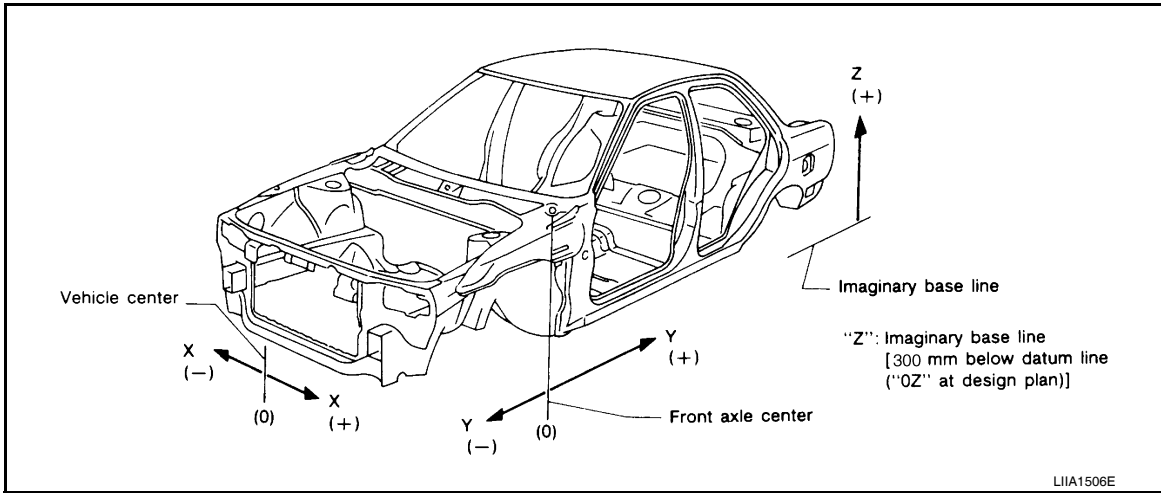
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## DESCRIPTION

- 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 REPAIR

< SERVICE INFORMATION >



Engine Compartment

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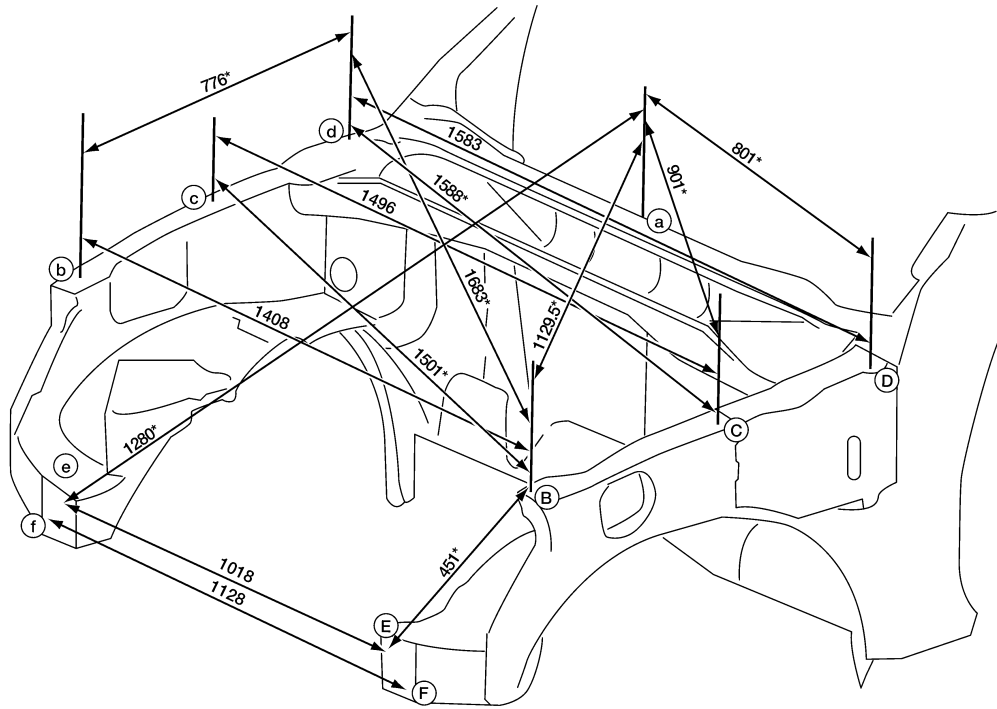
# BODY REPAIR

< SERVICE INFORMATION >

## MEASUREMENT

All dimensions indicated in this figure are actual.

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



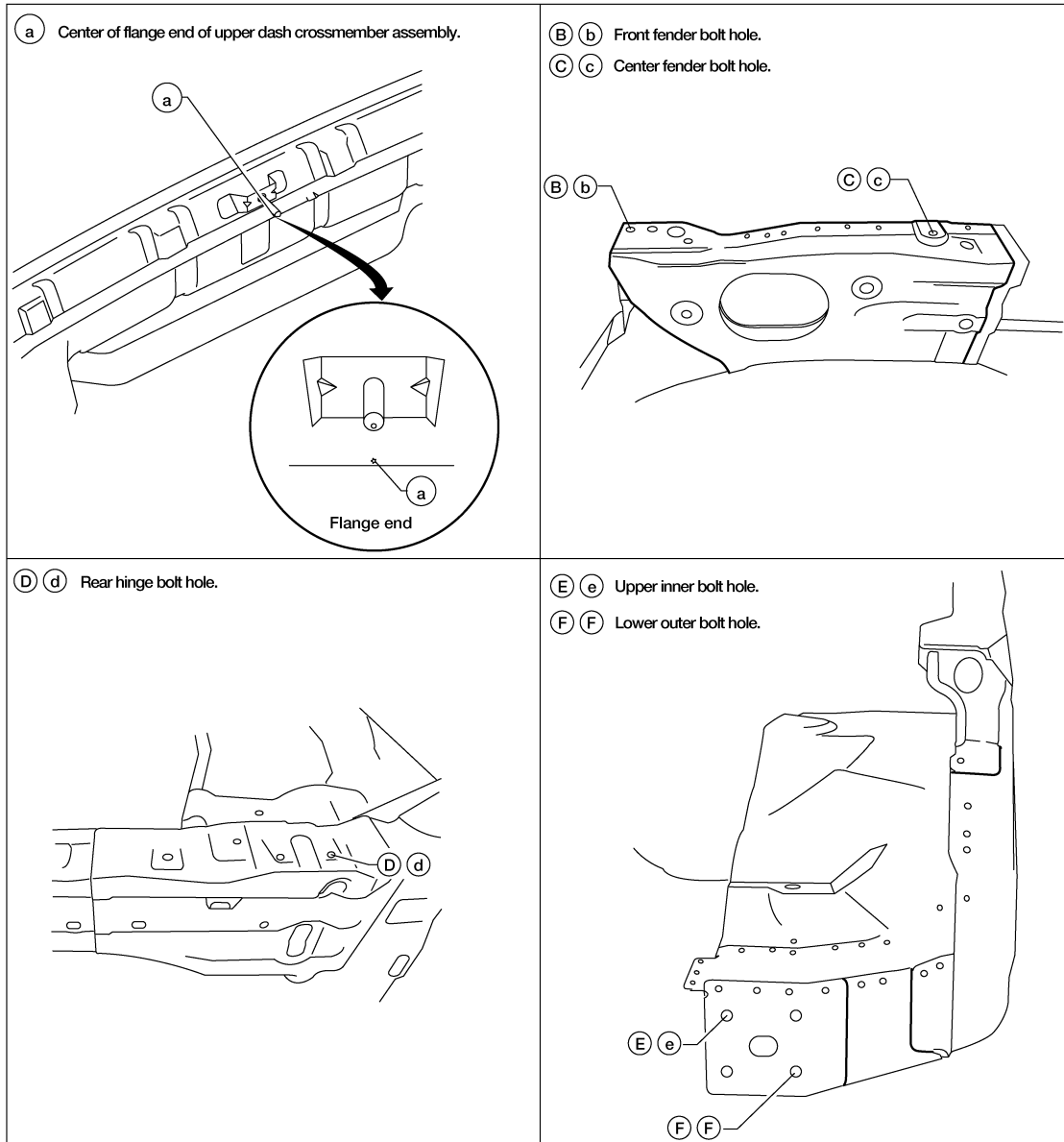
Unit: mm

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# BODY REPAIR

## < SERVICE INFORMATION >

### MEASUREMENT POINTS



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Underbody

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# BODY REPAIR

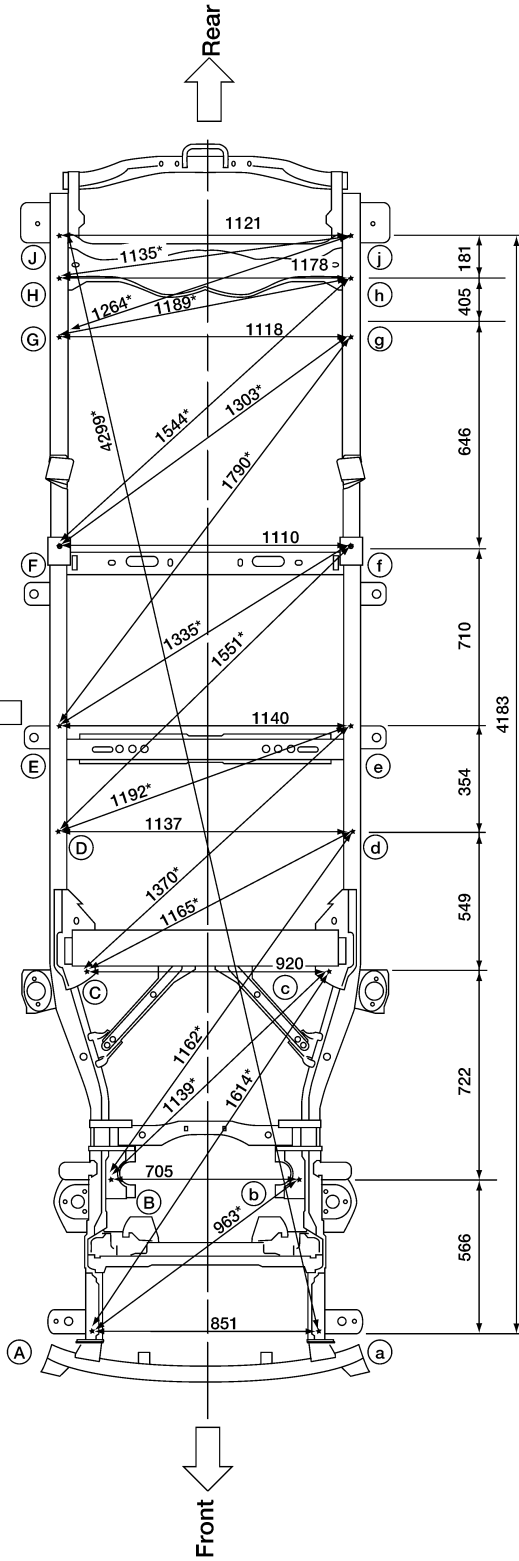
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## MEASUREMENT

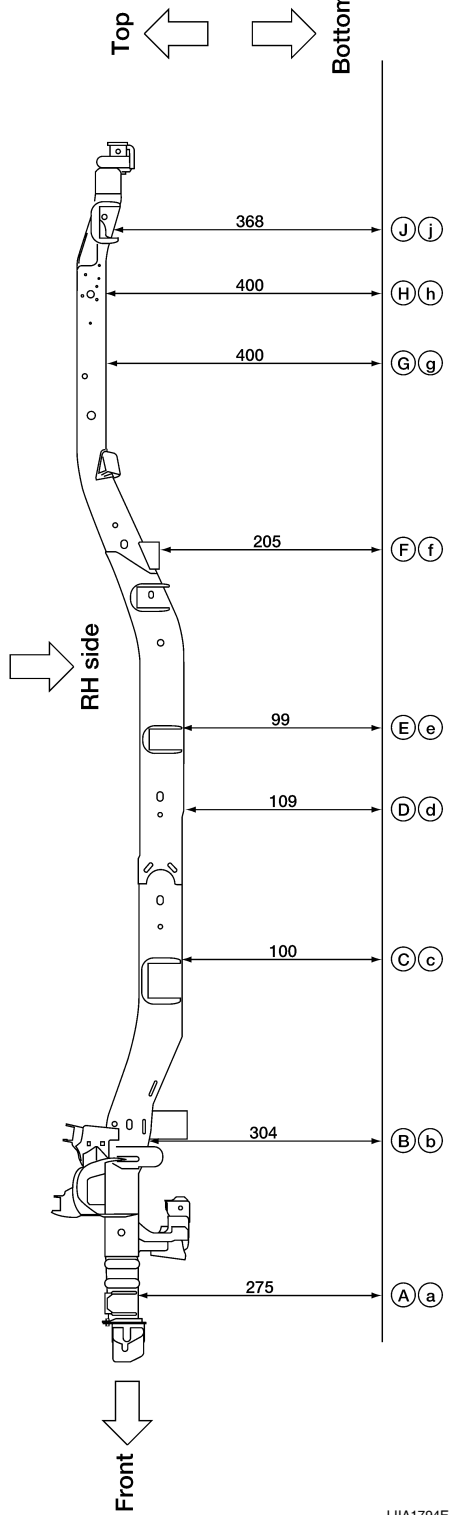
Figures marked with a (\*) indicate symmetrically identical dimensions on both right and left hand sides of the vehicle.

As viewed from underside.  
LH side

All dimensions indicated in this figure are actual.



Unit: mm



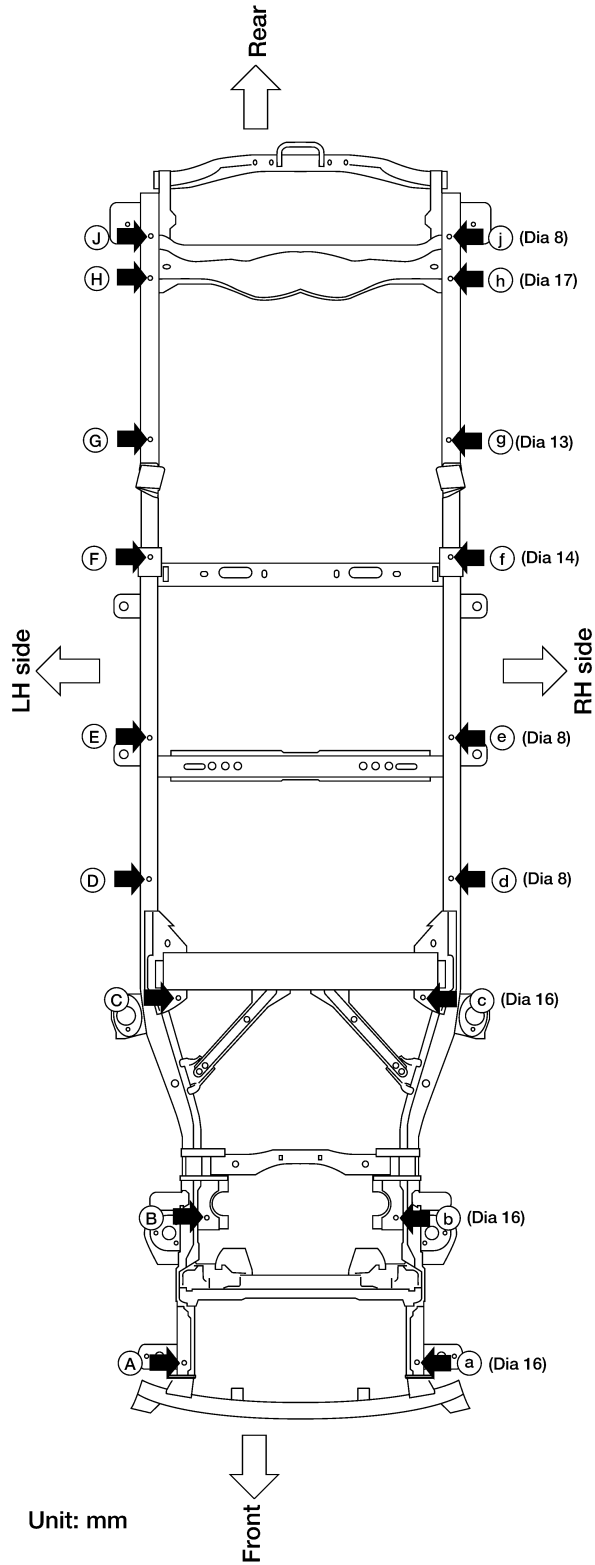
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# BODY REPAIR

< SERVICE INFORMATION >

## MEASUREMENT POINTS



### Coordinates:

(A), (a)	X : ± 425
	Y : -531
	Z : 275
(B), (b)	X : ± 353
	Y : 35
	Z : 304
(C), (c)	X : ± 460
	Y : 807
	Z : 100
(D), (d)	X : ± 568
	Y : 1356
	Z : 109
(E), (e)	X : ± 570
	Y : 1710
	Z : 99
(F), (f)	X : ± 555
	Y : 2420
	Z : 205
(G), (g)	X : ± 559
	Y : 3066
	Z : 400
(H), (h)	X : ± 559
	Y : 3471
	Z : 400
(J), (j)	X : ± 560
	Y : 3652
	Z : 368

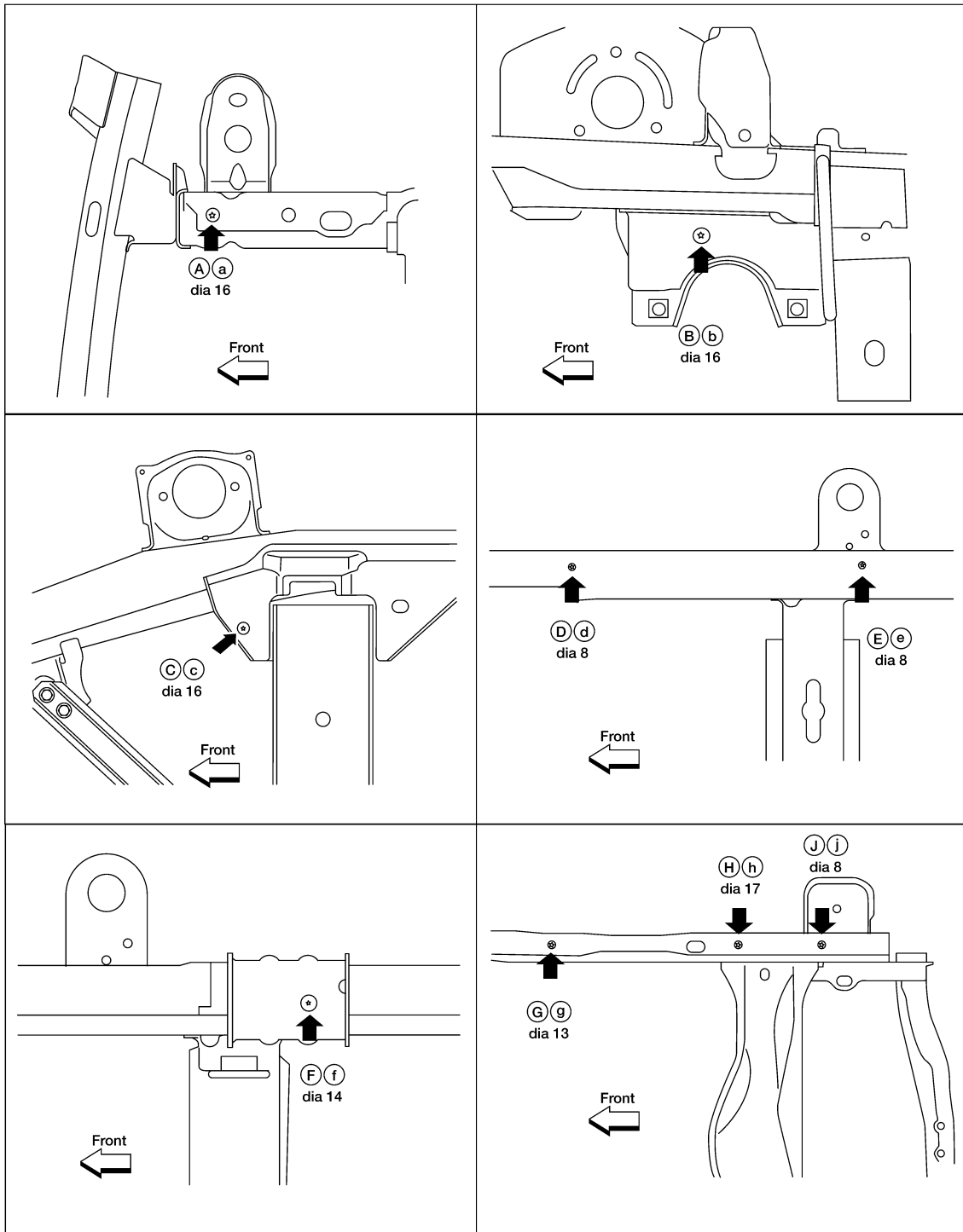
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# BODY REPAIR

< SERVICE INFORMATION >



Coordinates:		(A) a	(B) b	(C) c	(D) d	(E) e	(F) f	(G) g	(H) h	(J) j
X :	±	425	353	460	568	570	555	559	559	560
Y :		-531	35	807	1356	1710	2420	3066	3471	3652
Z :		275	304	100	109	99	205	400	400	368

Unit: mm

LIIA1796E

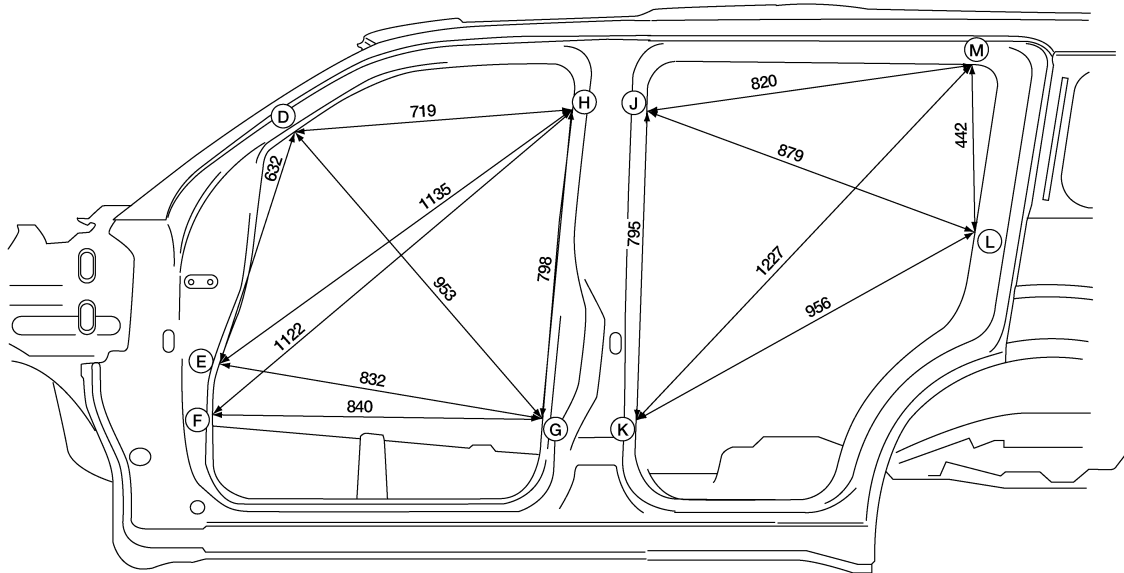
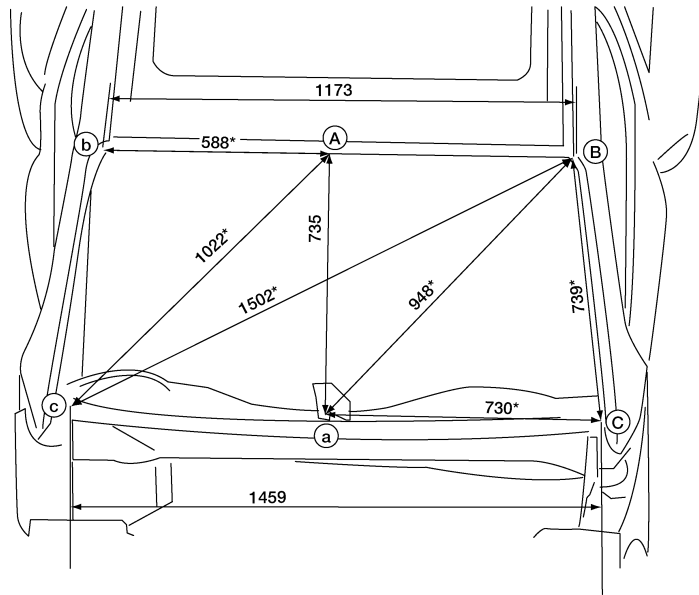
Passenger Compartment

# BODY REPAIR

< SERVICE INFORMATION >

## MEASUREMENT

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



Unit: mm

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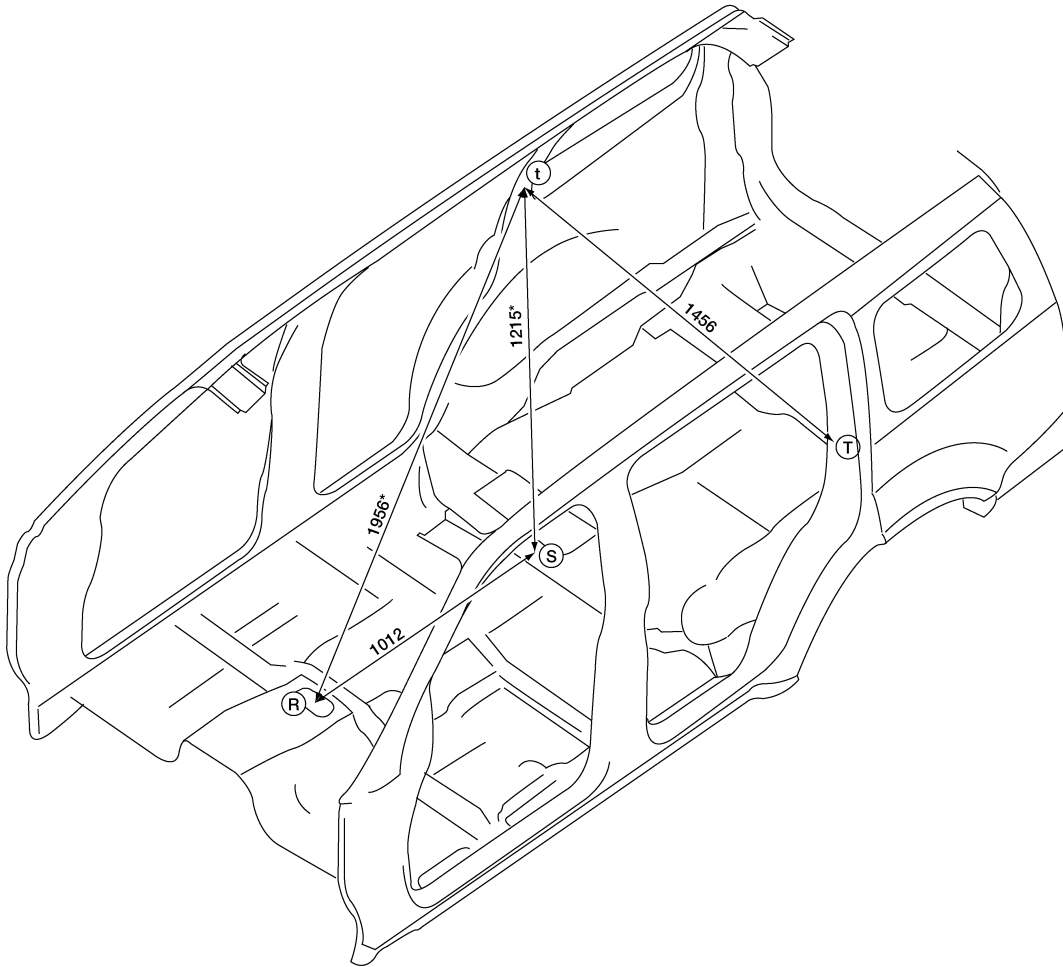
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# BODY REPAIR

< SERVICE INFORMATION >

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



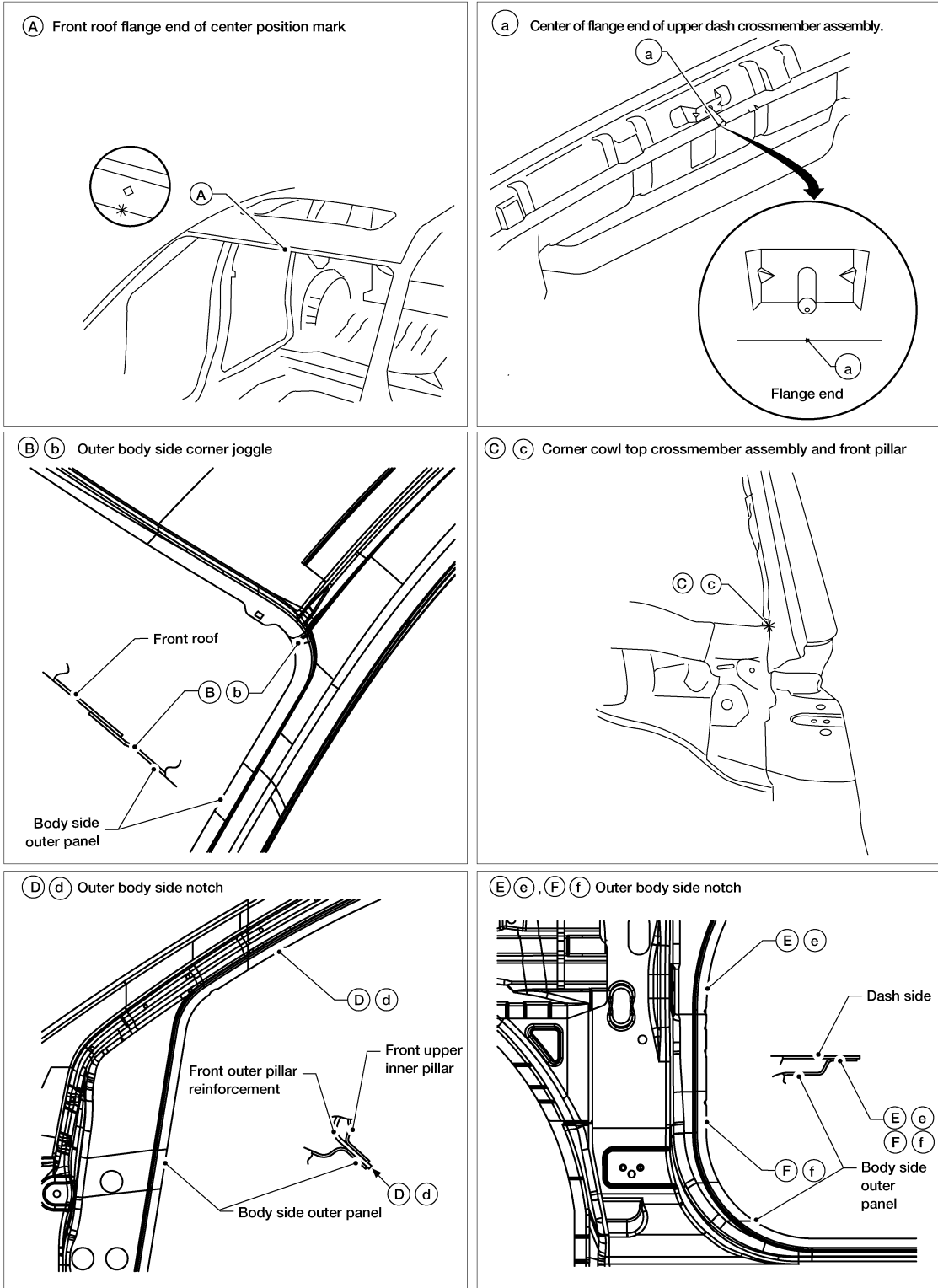
Unit: mm

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# BODY REPAIR

< SERVICE INFORMATION >

## MEASUREMENT POINTS



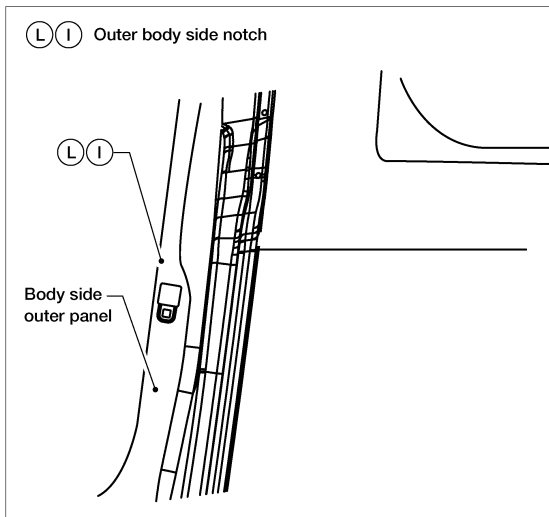
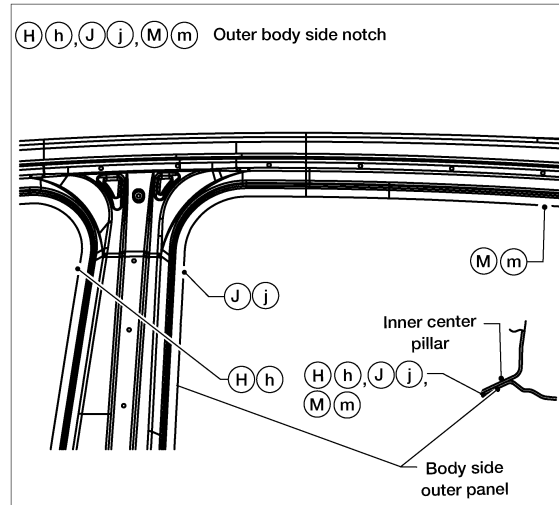
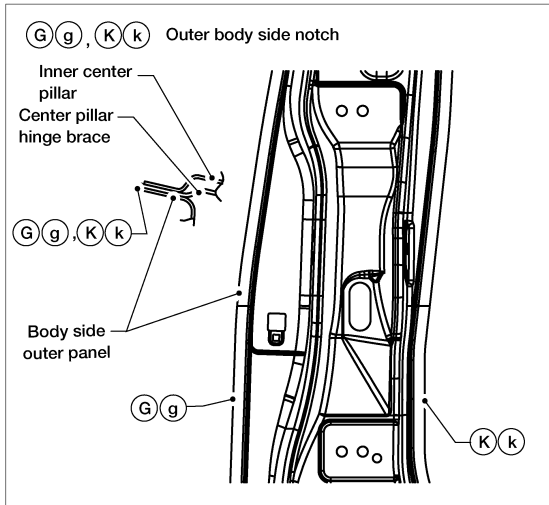
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# BODY REPAIR

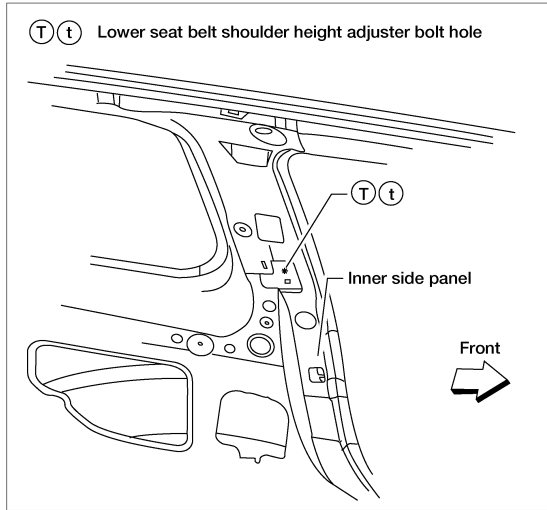
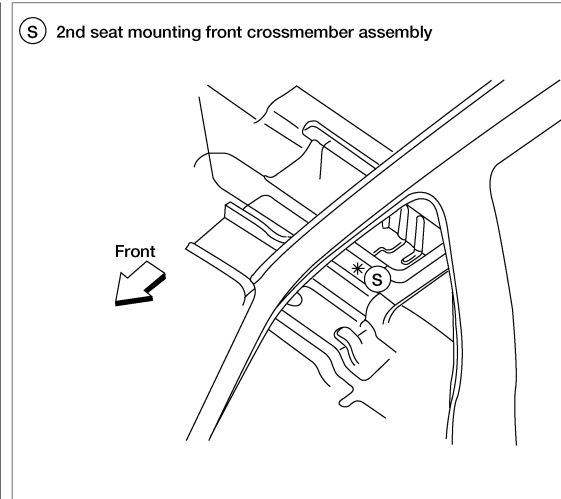
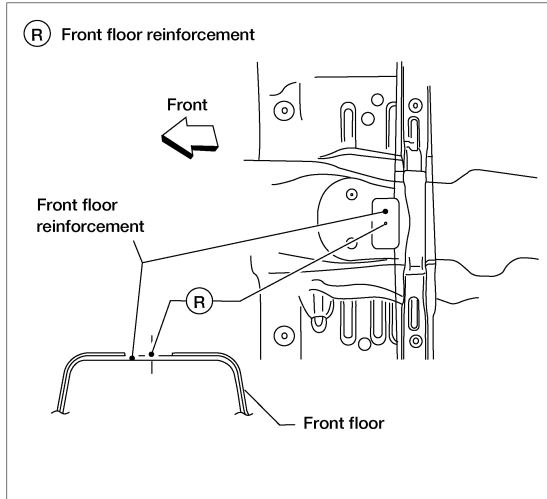
## < SERVICE INFORMATION >



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# BODY REPAIR

## < SERVICE INFORMATION >



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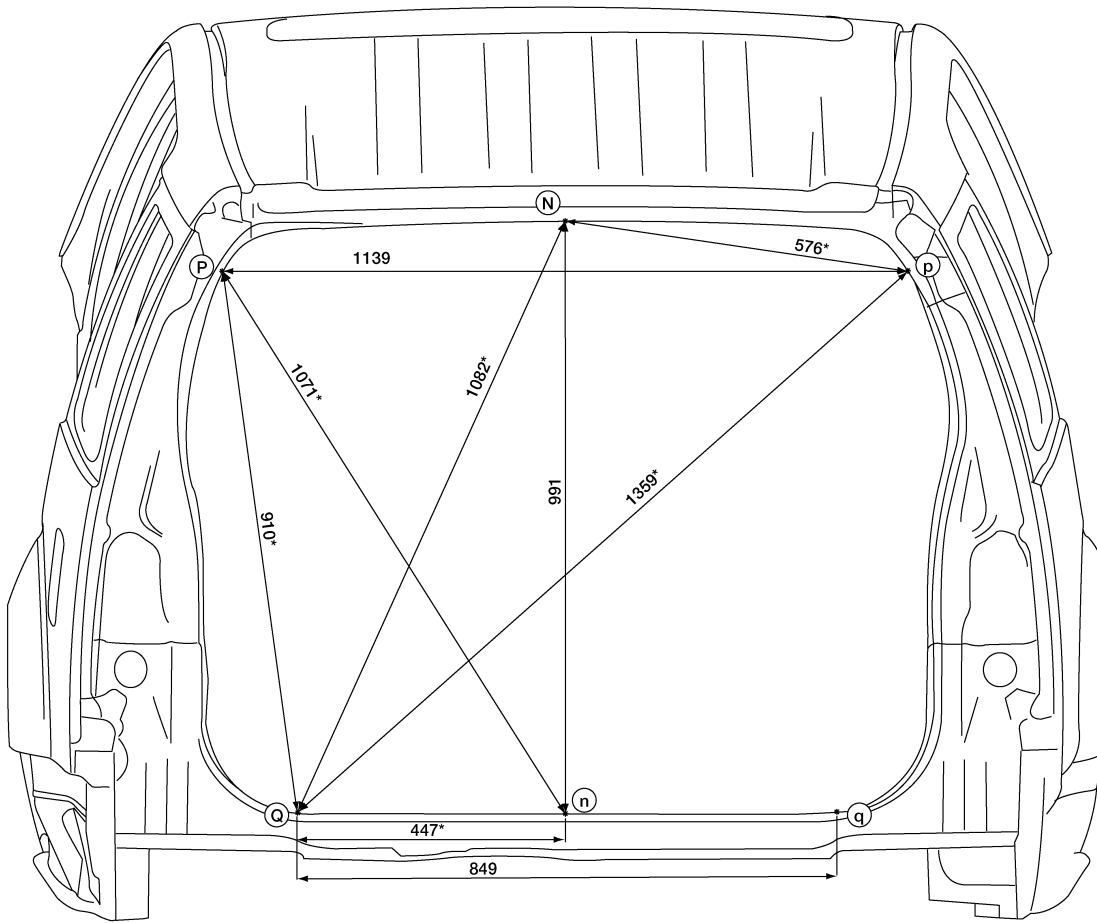
Rear Body

# BODY REPAIR

< SERVICE INFORMATION >

## MEASUREMENT

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



Unit: mm

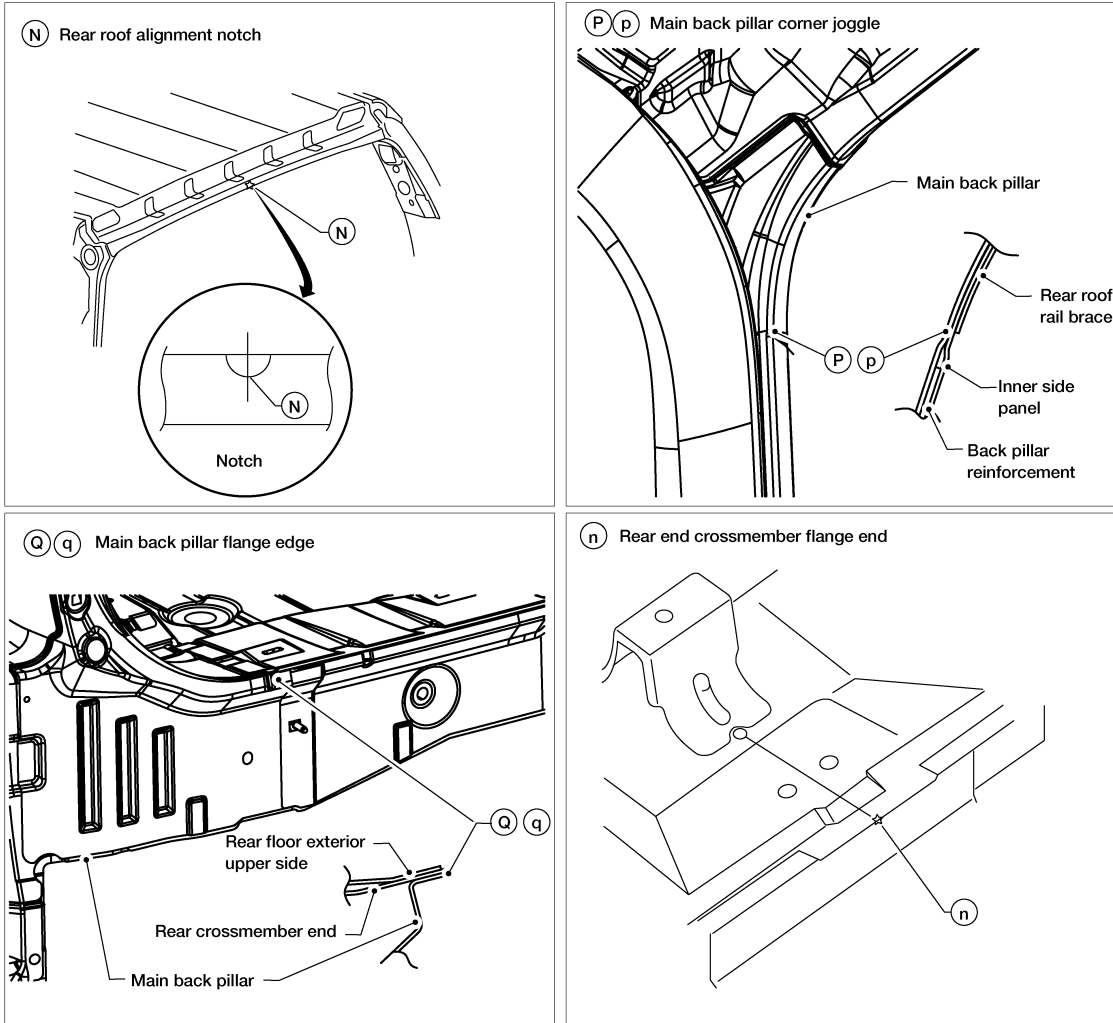
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# BODY REPAIR

## < SERVICE INFORMATION >

### MEASUREMENT POINTS



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INFOID:000000005259211

## Handling Precaution for Plastics

### HANDLING PRECAUTIONS FOR PLASTICS

## BODY REPAIR

### < SERVICE INFORMATION >

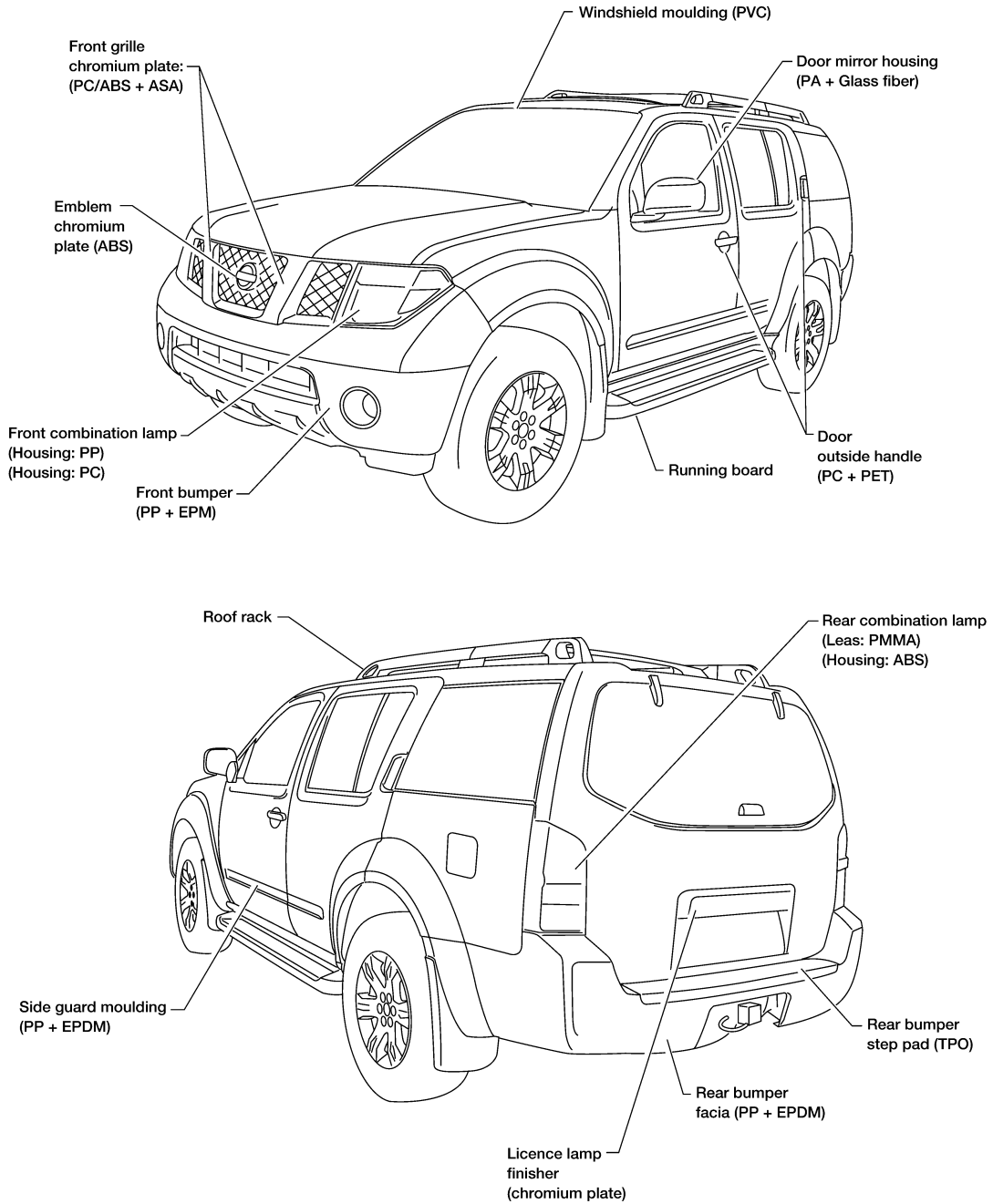
Abbreviation	Material name	Heatresisting temperature °C (°F)	Resistance to gasoline and solvents	Other cautions
PE	Polyethylene	60 (140)	Gasoline and most solvents are harmless if applied for a very short time (wipe up quickly).	Flammable
PVC	Polyvinyl Chloride	80 (176)	Same as above.	Poison gas is emitted when burned.
EPM/EPDM	Ethylene Propylene (Diene) rubber	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 battery acid.
UP	Polyester thermoset	90 (194)	Same as above.	Flammable
PS	Polystyrene	80 (176)	Avoid solvents.	Flammable
ABS	Acrylonitrile Butadiene Styrene resin	80 (176)	Avoid gasoline and solvents.	
AES	Acrylonitrile Ethylene Styrene	80 (176)	Same as above.	
PMMA	Polymethyl Methacrylate	85 (185)	Same as above.	
AAS	Acrylonitrile Acrylic Styrene	85 (185)	Same as above.	
AS	Acrylonitrile Styrene	85 (185)	Same as above.	
EVA	Polyvinyl Ethyl Acetate	90 (194)	Same as above.	
ASA	Acrylonitrile Styrene Acrylate	100 (222)	Same as above.	Flammable
PPO/PPE	Polyphenylene Oxide/ Polyphenylene Ether	110 (230)	Same as above.	
PC	Polycarbonate	120 (248)	Same as above.	
PAR	Polyacrylate	180 (356)	Same as above.	
L-LDPE	Linear Low Density PE	45 (100)	Gasoline and most solvents are harmless.	Flammable
PUR	Polyurethane	90 (194)	Same as above.	
TPU	Thermoplastic Urethane	110 (230)	Same as above.	
PPC	Polypropylene Composite	115 (239)	Same as above.	Flammable
POM	Polyacetal	120 (248)	Same as above.	Avoid battery acid.
PBT+PC	Polybutylene Terephthalate+Polycarbonate	120 (248)	Same as above.	Flammable
PA	Polyamide (Nylon)	140 (284)	Same as above.	Avoid immersing in water.
PBT	Polybutylene Terephthalate	140 (284)	Same as above.	
FRP	Fiber Reinforced Plastics	170 (338)	Same as above.	Avoid battery acid.
PET	Polyethylene Terephthalate	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.

# BODY REPAIR

< SERVICE INFORMATION >

## LOCATION OF PLASTIC PARTS



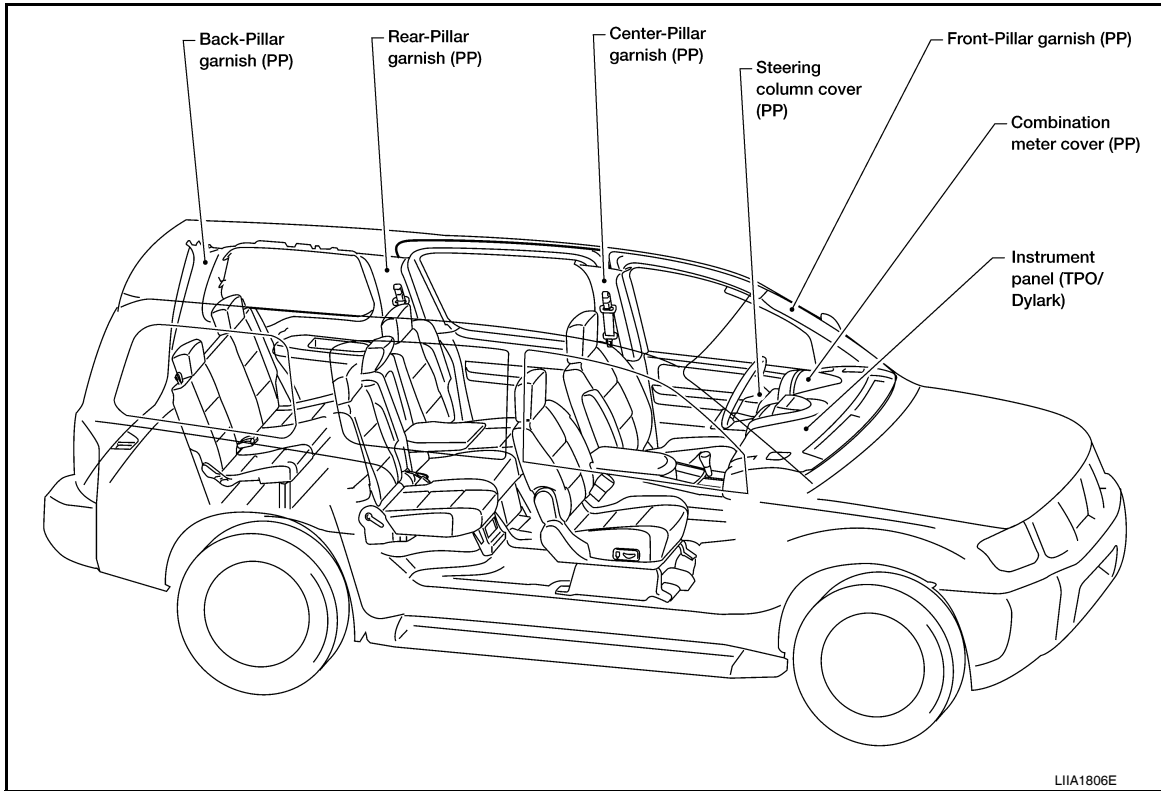
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# BODY REPAIR

## < SERVICE INFORMATION >



### Precaution in Repairing High Strength Steel

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

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

High strength steel (hss) used in nissan vehicles

Tensile strength	Nissan/Infiniti designation	Major applicable parts
373 N/mm <sup>2</sup> (38kg/mm <sup>2</sup> , 54klb/sq in)	SP130	<ul style="list-style-type: none"> <li>• Front inner pillar upper</li> <li>• Front pillar hinge brace</li> <li>• Outer front pillar reinforcement</li> <li>• Other reinforcements</li> </ul>
785-981 N/mm <sup>2</sup> (80-100kg/mm <sup>2</sup> 114-142klb/sq in)	SP150	<ul style="list-style-type: none"> <li>• Outer sill reinforcement</li> <li>• Main back pillar</li> </ul>

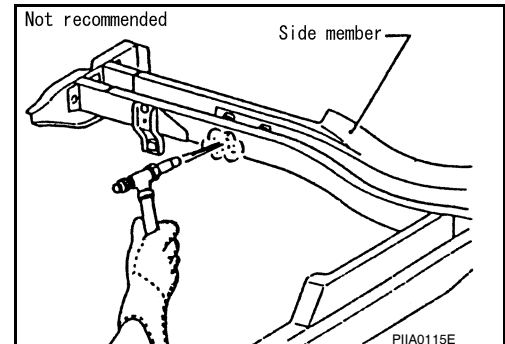
SP130 is the most commonly used HSS.

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

Read the following precautions when repairing HSS:

#### 1. Additional points to consider

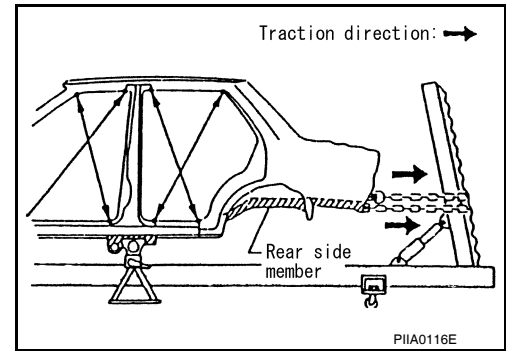
- The repair of reinforcements (such as side members) by heating is not recommended since it may weaken the component. When heating is unavoidable, do not heat HSS parts above 550°C (1,022°F). Verify heating temperature with a thermometer. (Crayon-type and other similar type thermometer are appropriate.)



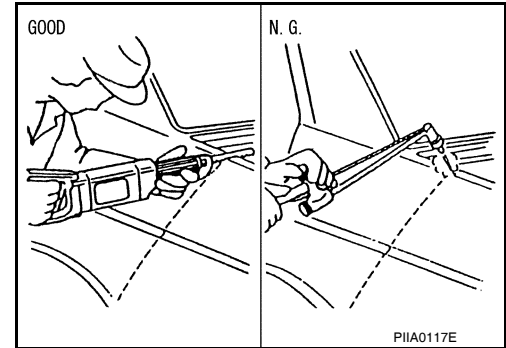
# BODY REPAIR

## < SERVICE INFORMATION >

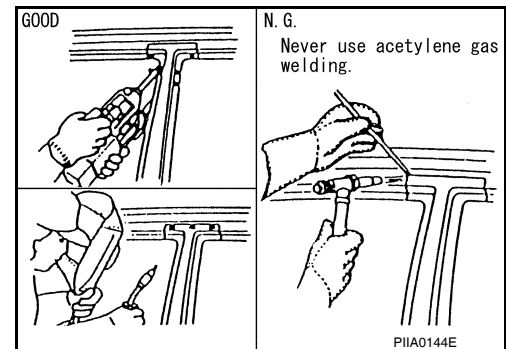
- When straightening body panels, use caution in pulling any HSS panel. Because HSS is very strong, pulling may cause deformation in adjacent portions of the body. In this case, increase the number of measuring points, and carefully pull the HSS panel.



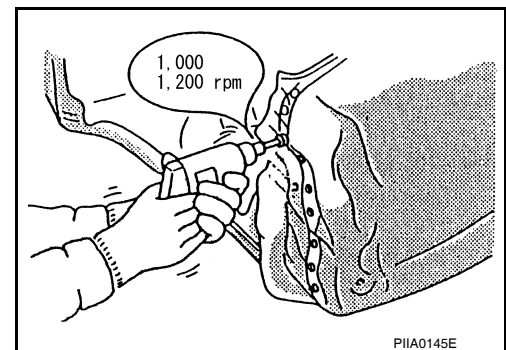
- When cutting HSS panels, avoid gas (torch) cutting if possible. Instead, use a saw to avoid weakening surrounding areas due to heat. If gas (torch) cutting is unavoidable, allow a minimum margin of 50 mm (1.97in).



- 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.
- SP150 HSS panels with a tensile strength of 785 to 981 N/mm<sup>2</sup> (80 to 100 kg/mm<sup>2</sup>, 114 to 142 klb/sq in), used as reinforcement in the door guard beams, is too strong to repair. When these HSS parts are damaged, the outer panels also sustain substantial damage; therefore, the assembly parts must be replaced.



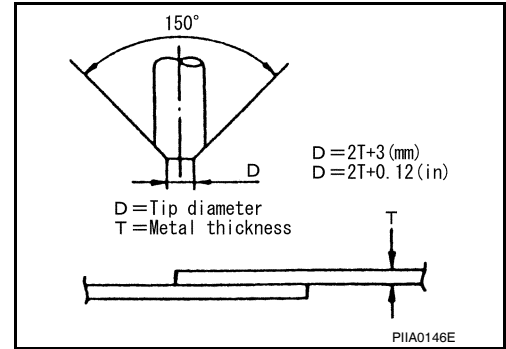
# BODY REPAIR

## < SERVICE INFORMATION >

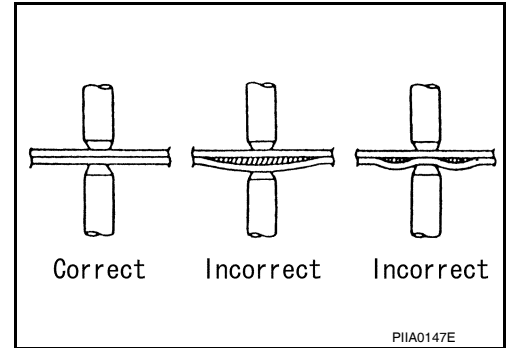
### 2. Precautions in spot welding HSS

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.



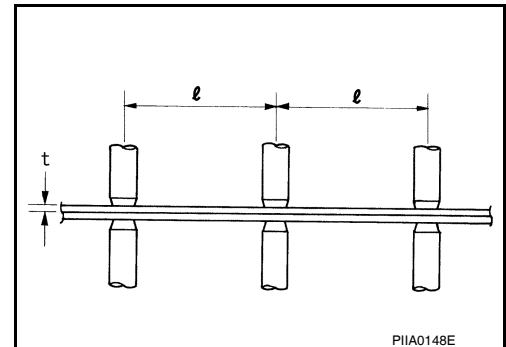
- The panel surfaces must fit flush to each other, leaving no gaps.



- Follow the specifications for the proper welding pitch.

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



## Foam Repair

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

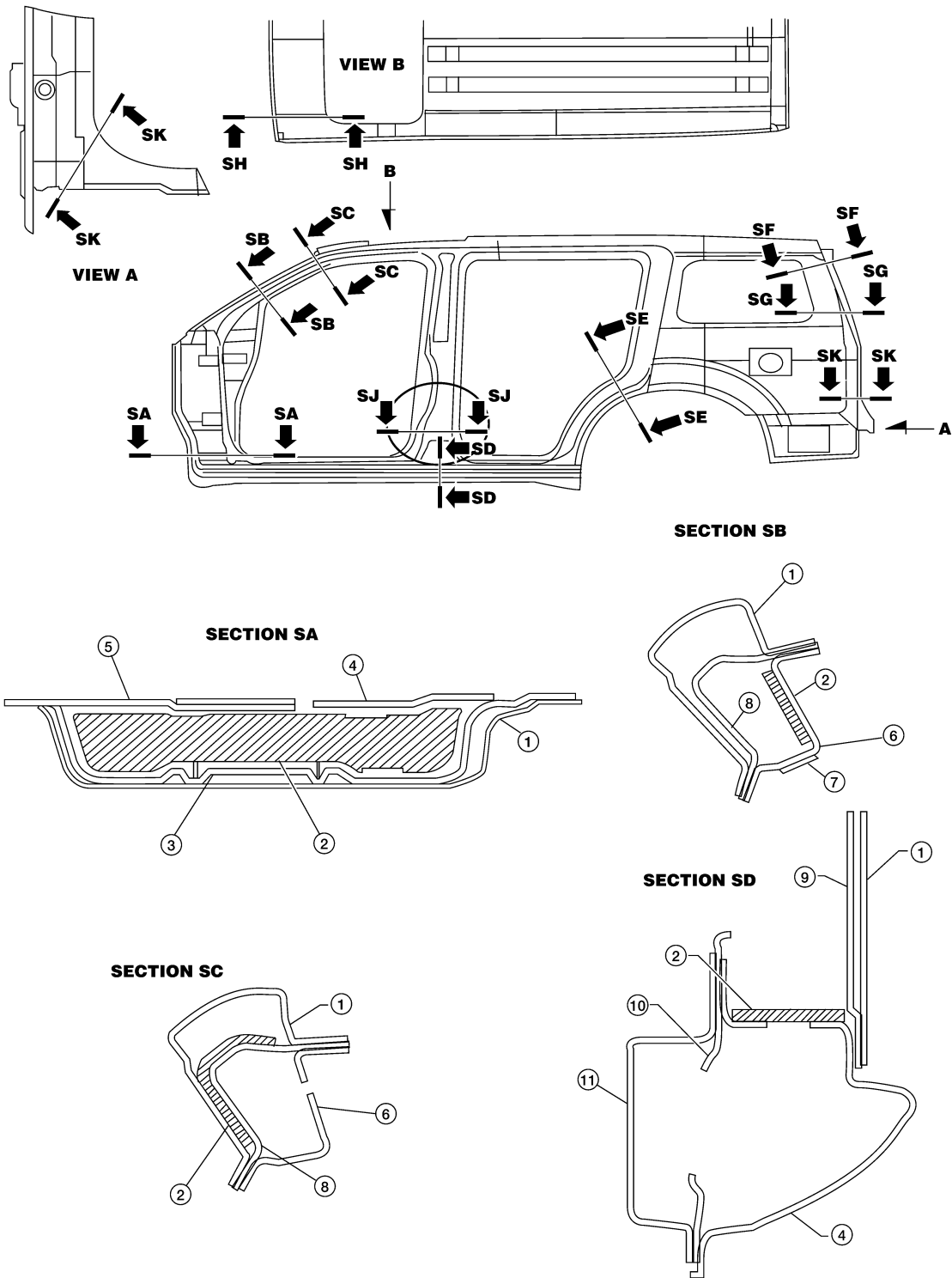
### URETHANE FOAM APPLICATIONS

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

### FILL PROCEDURES

# BODY REPAIR

< SERVICE INFORMATION >



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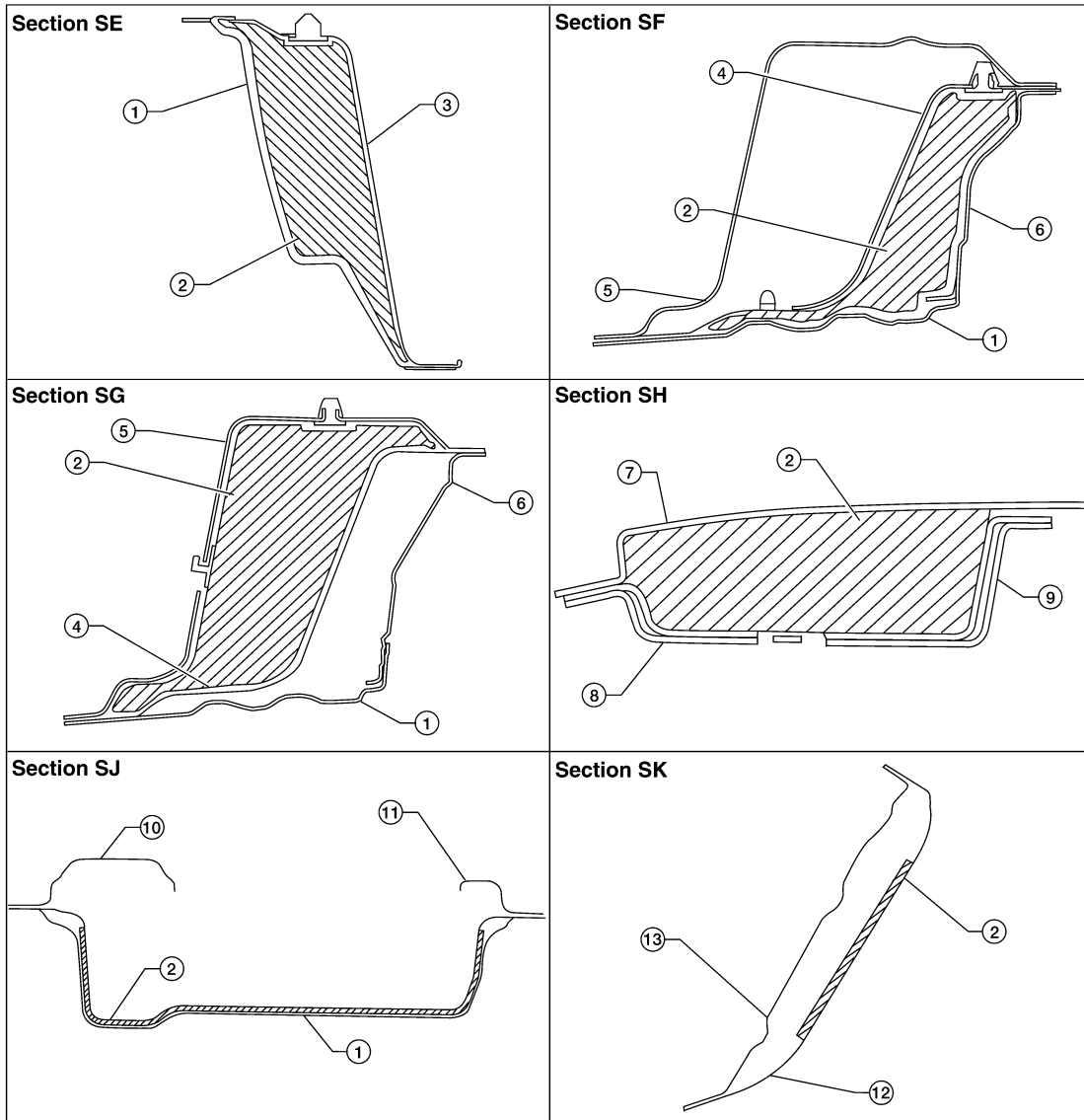
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- |                             |                                   |                               |
|-----------------------------|-----------------------------------|-------------------------------|
| 1. Body side outer          | 2. Body side insulation (foam)    | 3. A-pillar lower hinge brace |
| 4. Sill outer reinforcement | 5. front sill outer reinforcement | 6. Inner A-pillar upper       |
| 7. A-pillar inner bracket   | 8. A-pillar upper hinge brace     | 9. B-pillar hinge brace       |
| 10. Inner B-pillar          | 11. Inner sill extension          |                               |

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# BODY REPAIR

< SERVICE INFORMATION >



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- |                         |                                 |                                 |
|-------------------------|---------------------------------|---------------------------------|
| 1. Body side outer      | 2. Body side insulation (foam)  | 3. Rear wheel outer             |
| 4. Side panel inner     | 5. D-pillar inner reinforcement | 6. D-pillar outer reinforcement |
| 7. Roof                 | 8. Front roof rail              | 9. Front roof rail brace        |
| 10. B-pillar inner      | 11. B-pillar hinge brace        | 12. Rear side inner extension   |
| 13. D-pillar mail lower |                                 |                                 |

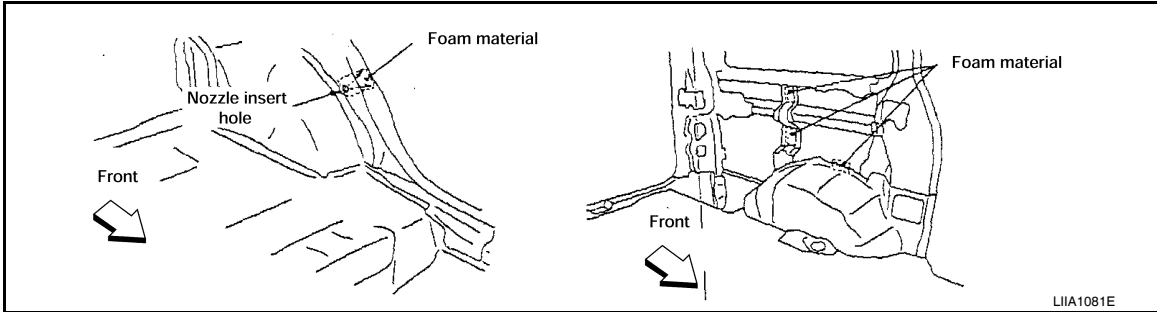
1. Fill procedures after installation of service part.



# BODY REPAIR

## < SERVICE INFORMATION >

- 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 the service part.



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

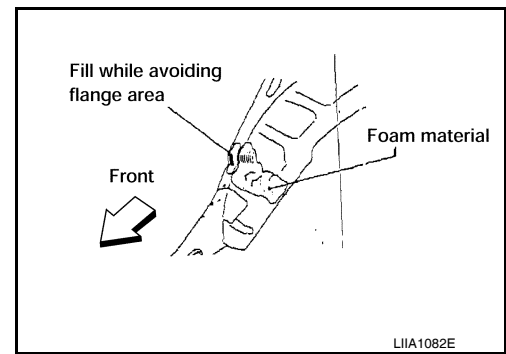
**NOTE:**

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.



INFOID:000000005259214

## Replacement Operation

### DESCRIPTION

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 warnings, that are not including in this manual. Technicians should refer to both manuals to ensure proper repairs.


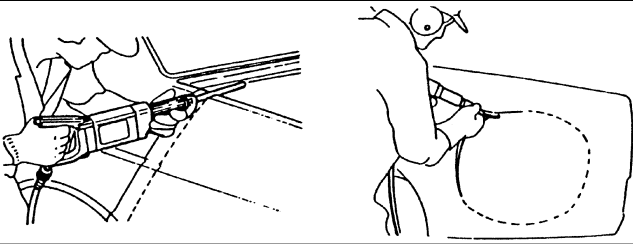

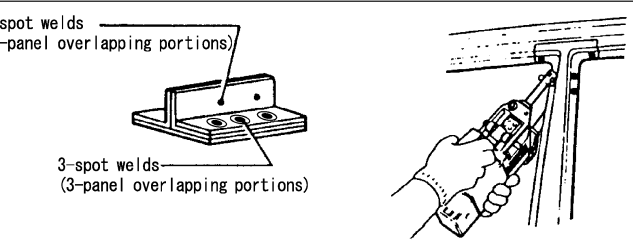


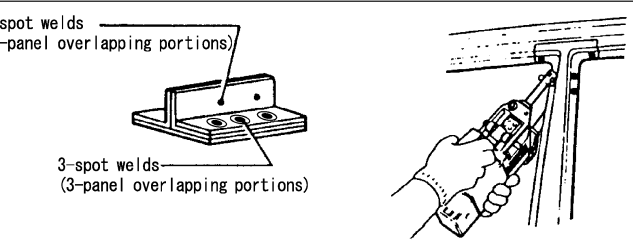


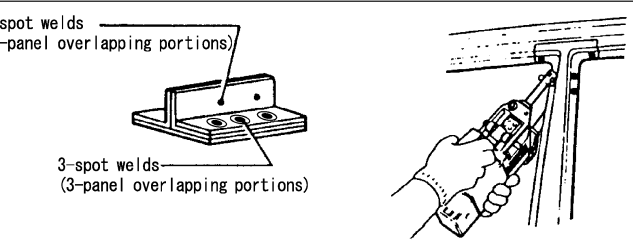


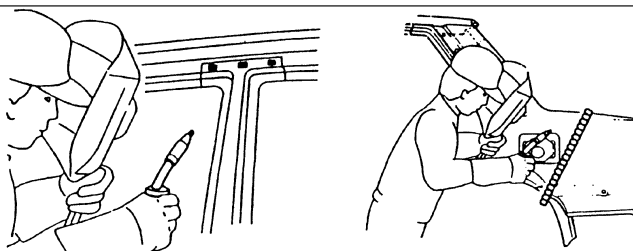



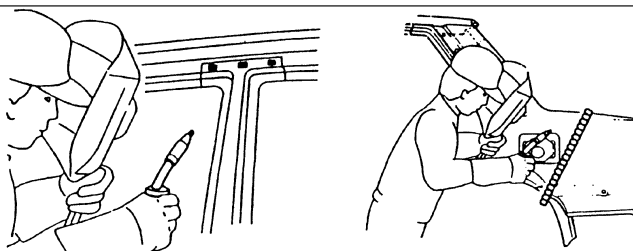



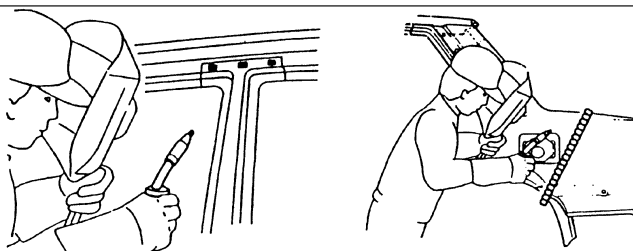




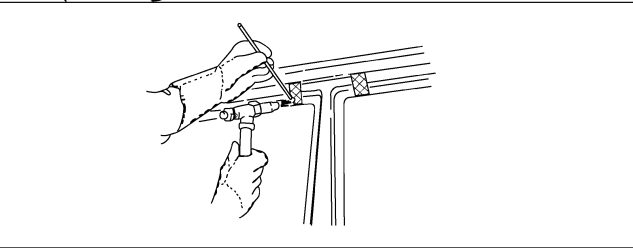


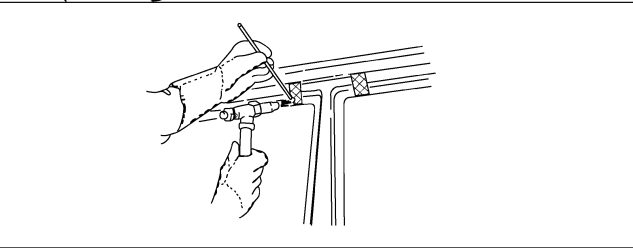


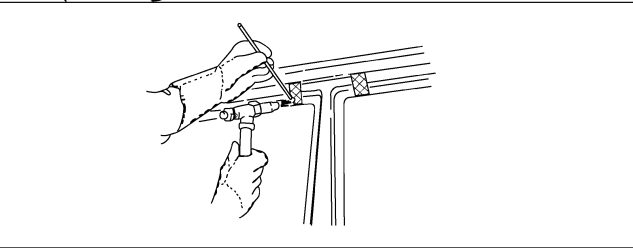
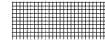

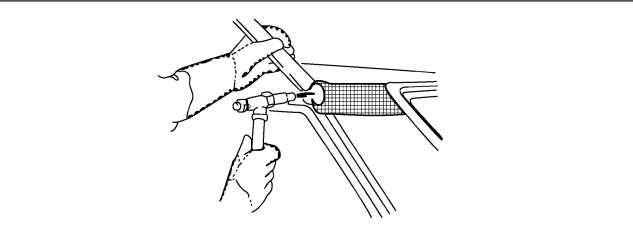
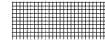

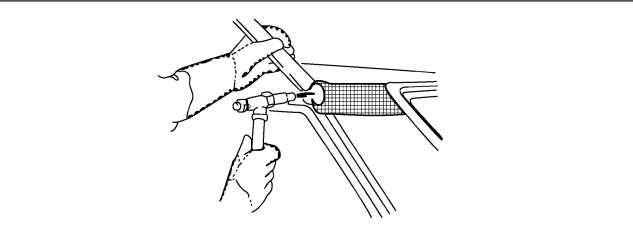
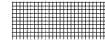

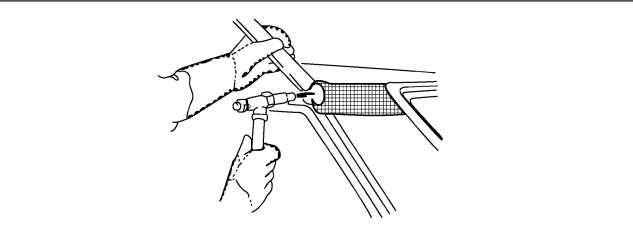

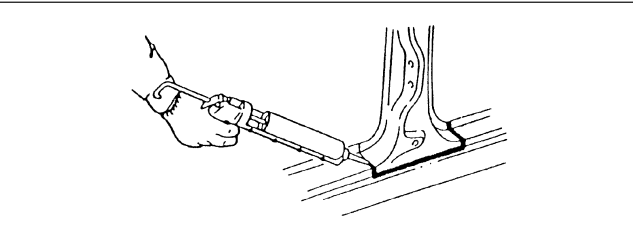

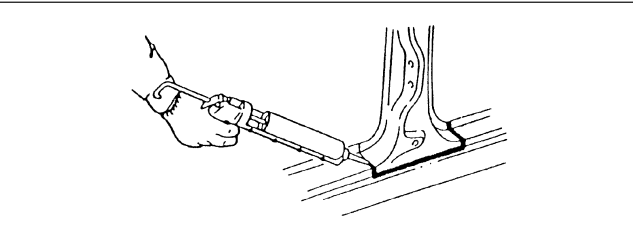

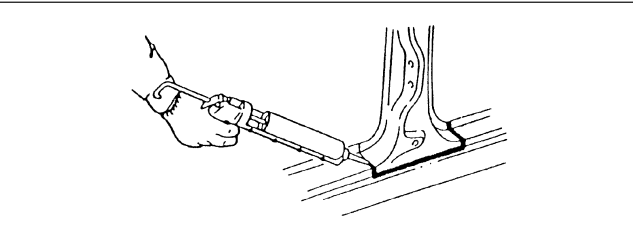
Please note that this information is prepared for worldwide usage, and as such, certain procedures may not apply in some regions or countries.

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# BODY REPAIR

## < SERVICE INFORMATION >

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

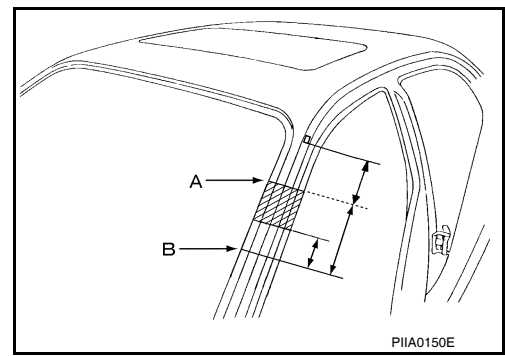
 Saw cut or air chisel cut								
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Spot weld		●●●●			2-spot welds (2-panel overlapping portions)  3-spot welds (3-panel overlapping portions)  			
	●●●●							
<table border="0"> <tr> <td data-bbox="267 726 349 747">■ ■ ■ ■</td> <td data-bbox="267 768 430 789">MIG plug weld</td> <td data-bbox="511 758 625 821">  </td> <td data-bbox="634 705 1369 953" rowspan="2">  </td> </tr> <tr> <td data-bbox="267 842 365 873">  </td> <td data-bbox="267 894 430 936">MIG seam weld/ Point weld</td> <td data-bbox="511 873 625 936">  </td> </tr> </table>	■ ■ ■ ■	MIG plug weld				MIG seam weld/ Point weld		
■ ■ ■ ■	MIG plug weld							
	MIG seam weld/ Point weld							
<table border="0"> <tr> <td data-bbox="277 974 381 1016">  </td> <td data-bbox="267 1020 365 1041">Brazing</td> <td data-bbox="456 1062 625 1115">  </td> <td data-bbox="634 953 1369 1199">  </td> </tr> </table>		Brazing						
	Brazing							
<table border="0"> <tr> <td data-bbox="277 1220 381 1262">  </td> <td data-bbox="267 1266 381 1287">Soldering</td> <td data-bbox="456 1318 625 1371">  </td> <td data-bbox="634 1199 1369 1444">  </td> </tr> </table>		Soldering						
	Soldering							
<table border="0"> <tr> <td data-bbox="267 1465 430 1486">  </td> <td data-bbox="267 1476 365 1497">Sealing</td> <td data-bbox="634 1444 1369 1682">  </td> </tr> </table>		Sealing						
	Sealing							

PIIA0149E

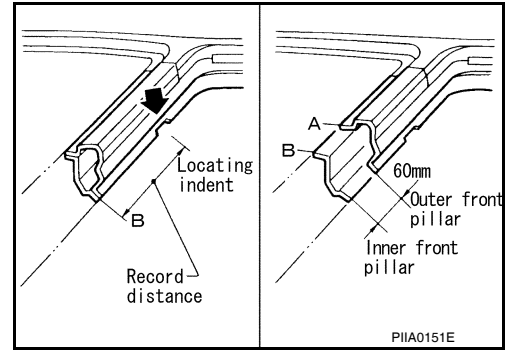
# BODY REPAIR

## < SERVICE INFORMATION >

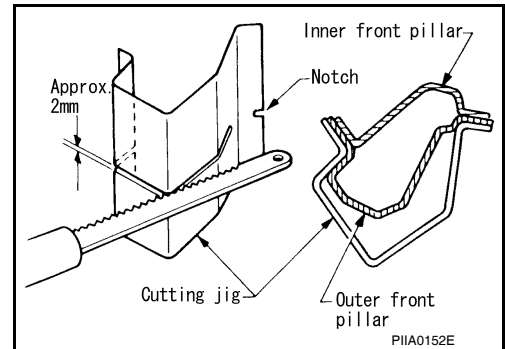
- Front pillar butt joint can be determined anywhere within shaded area as shown in the figure. The best location for the butt joint is at position A due to the construction of the vehicle. Refer to the front pillar section.



- 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.

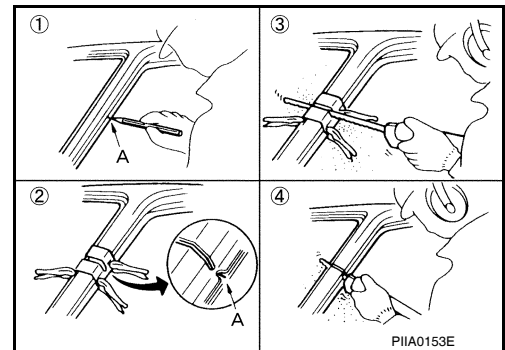


- Prepare a cutting jig to make outer pillar easier to cut. Also, this will permit service part to be accurately cut at joint position.



- 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.



## HOODLEDGE

LH

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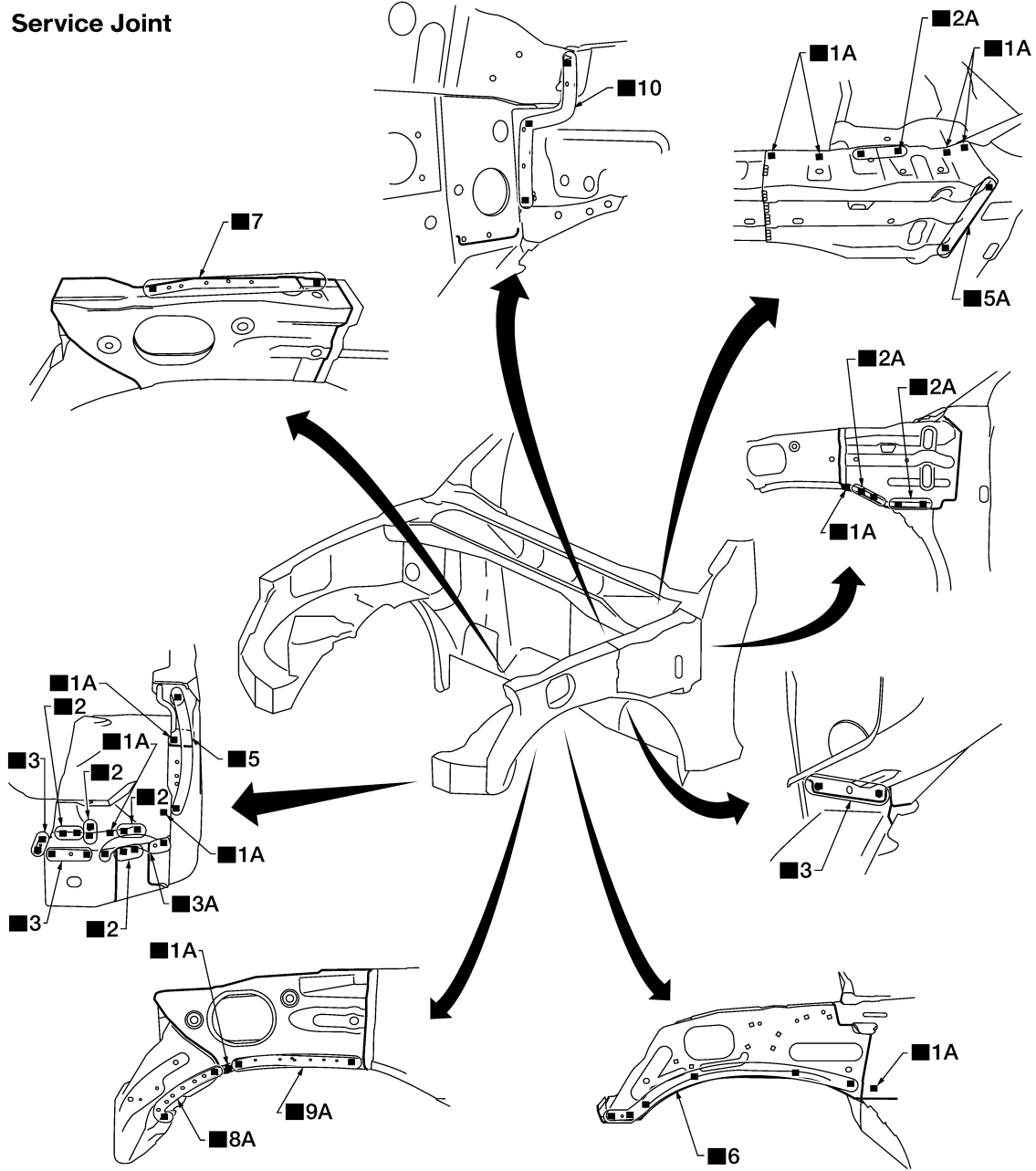
BRM

# BODY REPAIR

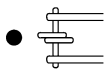
## < SERVICE INFORMATION >

- Work after radiator core support has been removed.

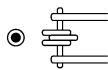
### Service Joint



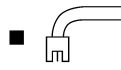
2-spot welds



3-spot welds



MIG Plug weld



( For 3 panels plug weld method )



MIG seam weld/  
Point weld



LIIA1808E

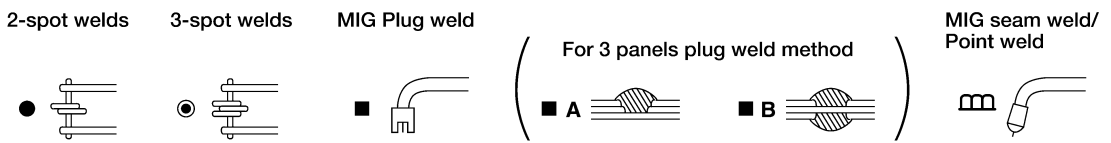
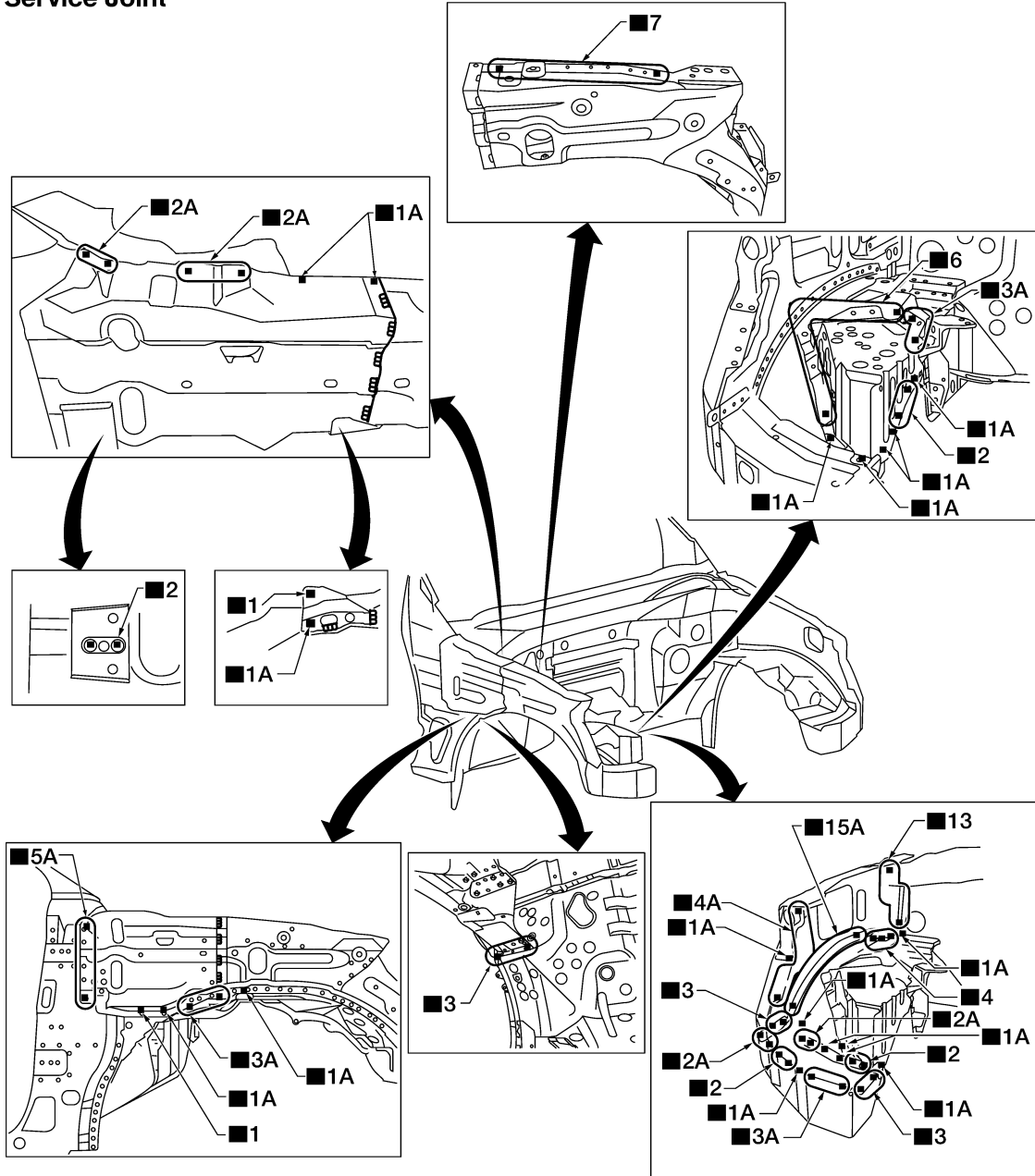
RH

# BODY REPAIR

## < SERVICE INFORMATION >

- Work after radiator core support has been removed.

### Service Joint



LIIA1809E

### FRONT PILLAR

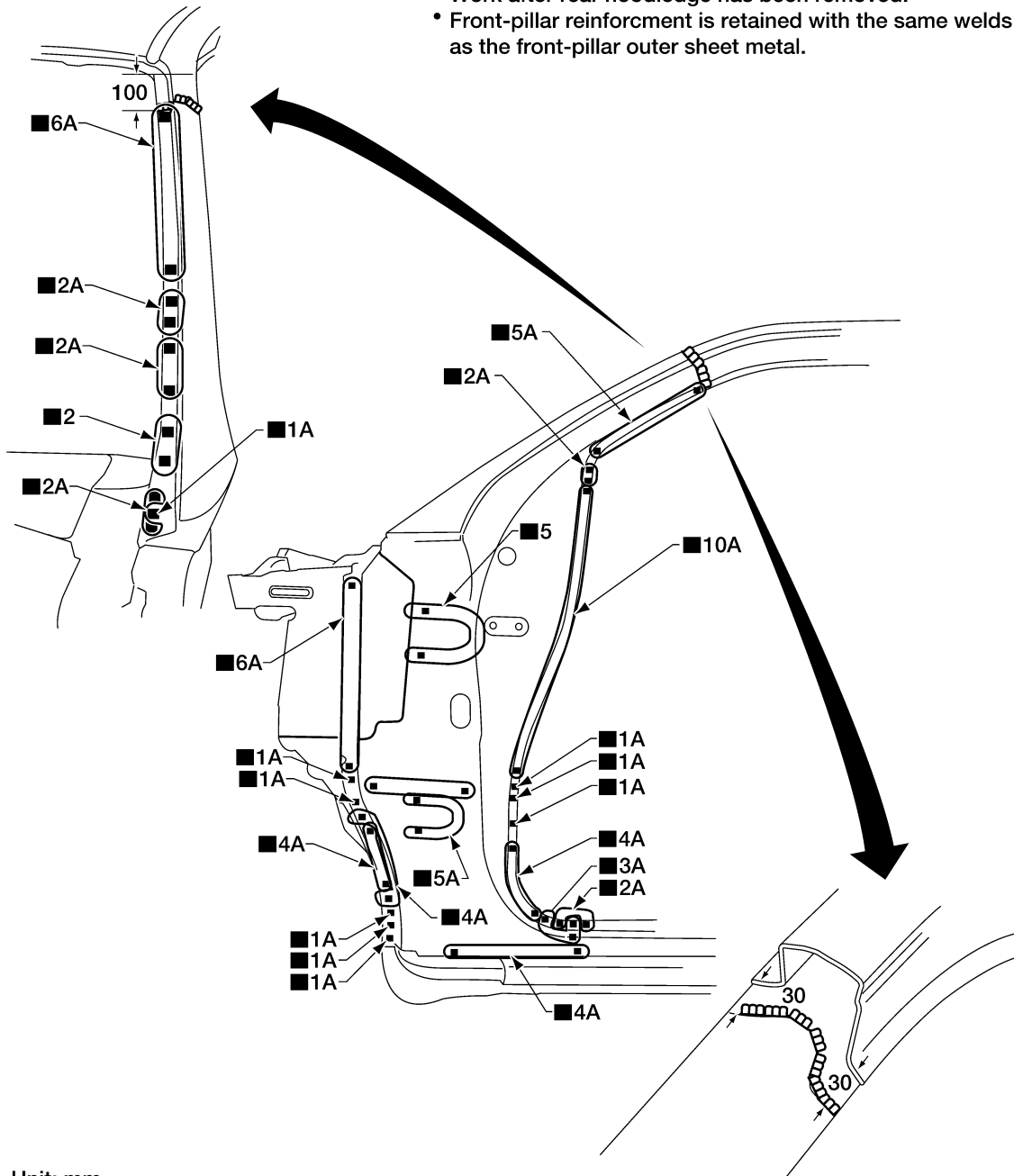
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# BODY REPAIR

## < SERVICE INFORMATION >

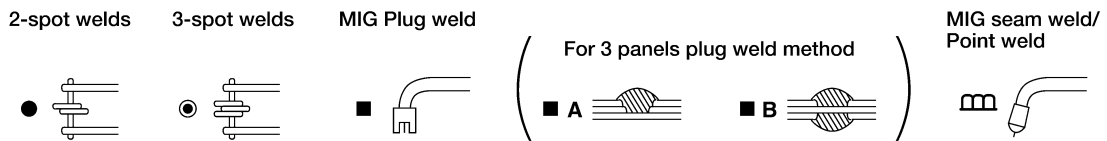
- Work after rear hoodledge reinforcement has been removed.

### Service Joint



- Work after rear hoodledge has been removed.
- Front-pillar reinforcement is retained with the same welds as the front-pillar outer sheet metal.

Unit: mm



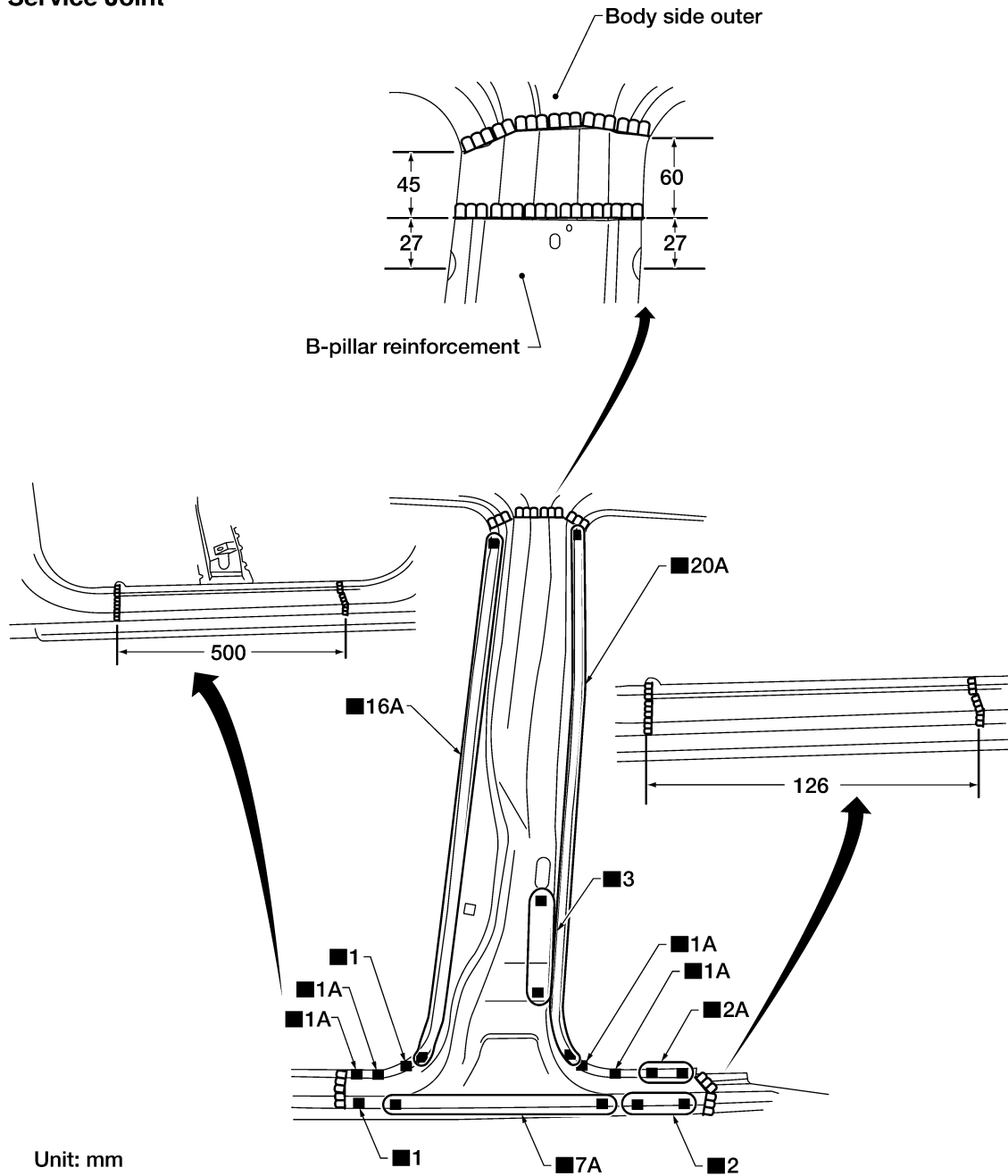
LIIA1810E

# BODY REPAIR

< SERVICE INFORMATION >

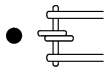
## CENTER PILLAR

### Service Joint

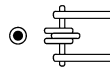


Unit: mm

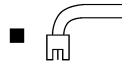
2-spot welds



3-spot welds



MIG Plug weld



For 3 panels plug weld method



MIG seam weld/  
Point weld



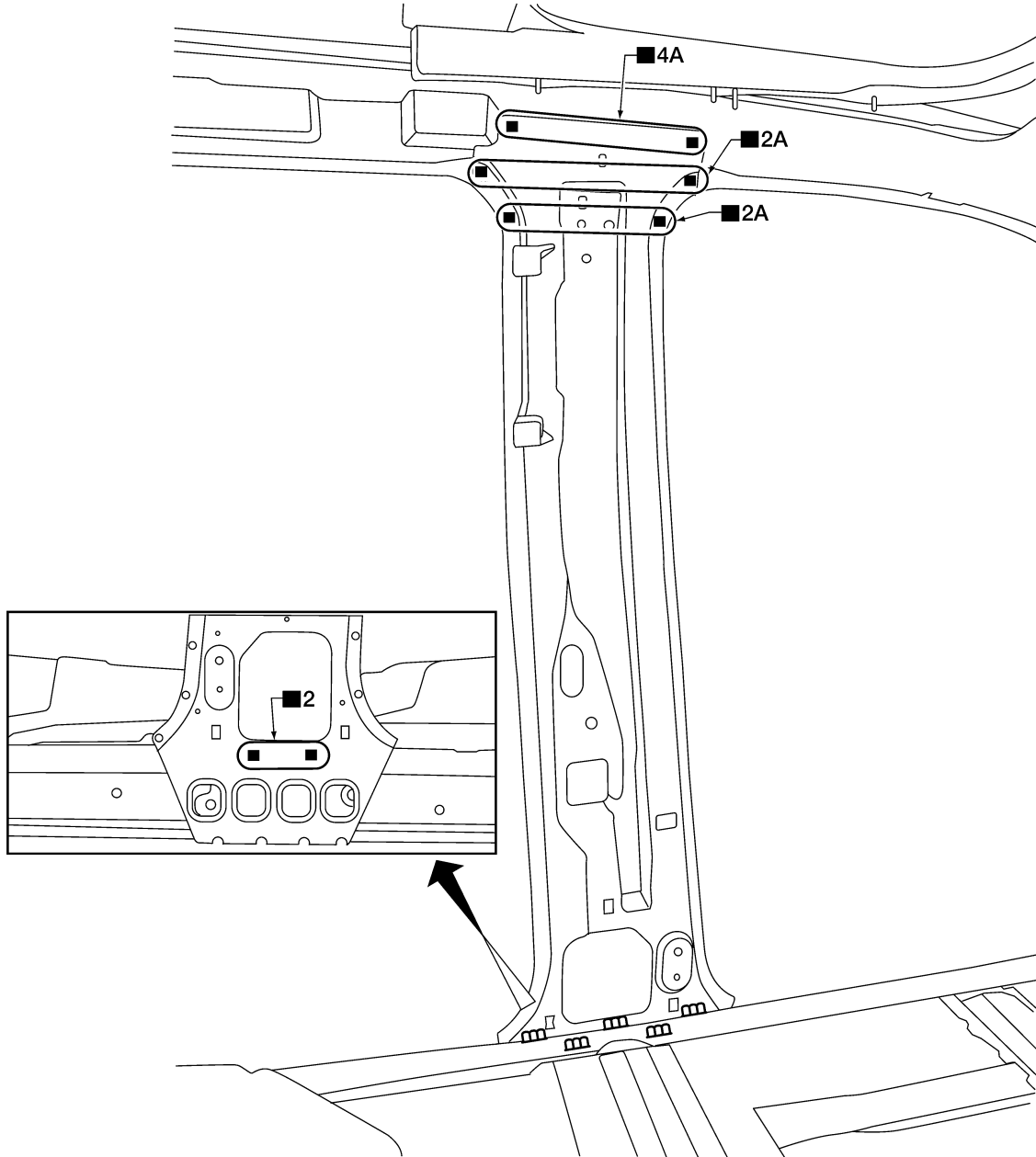
LIIA1811E

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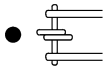
# BODY REPAIR

< SERVICE INFORMATION >

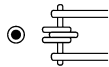
## Service Joint



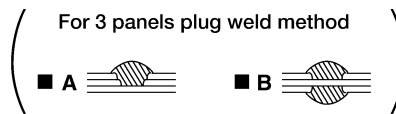
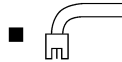
2-spot welds



3-spot welds



MIG Plug weld



MIG seam weld/  
Point weld



LIIA1812E

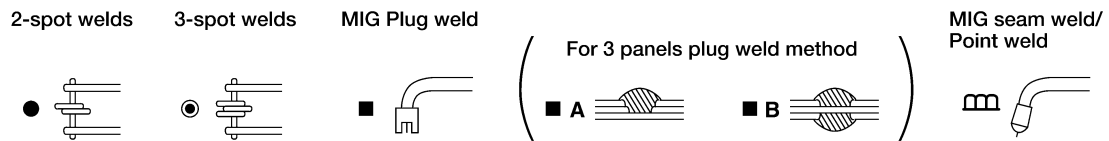
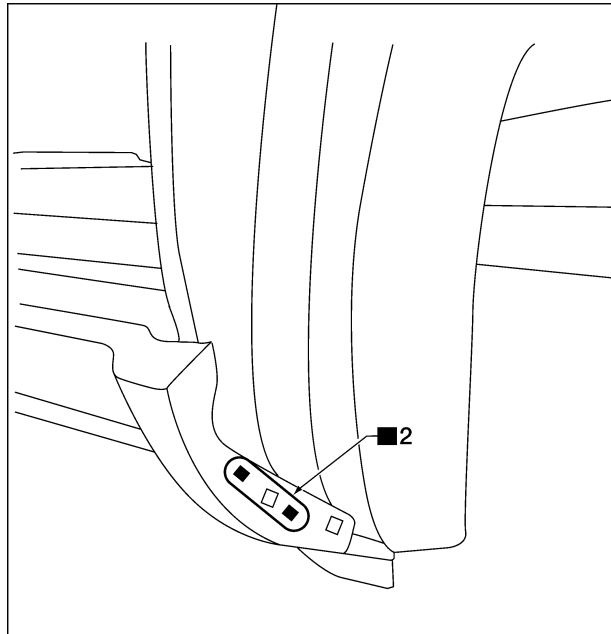
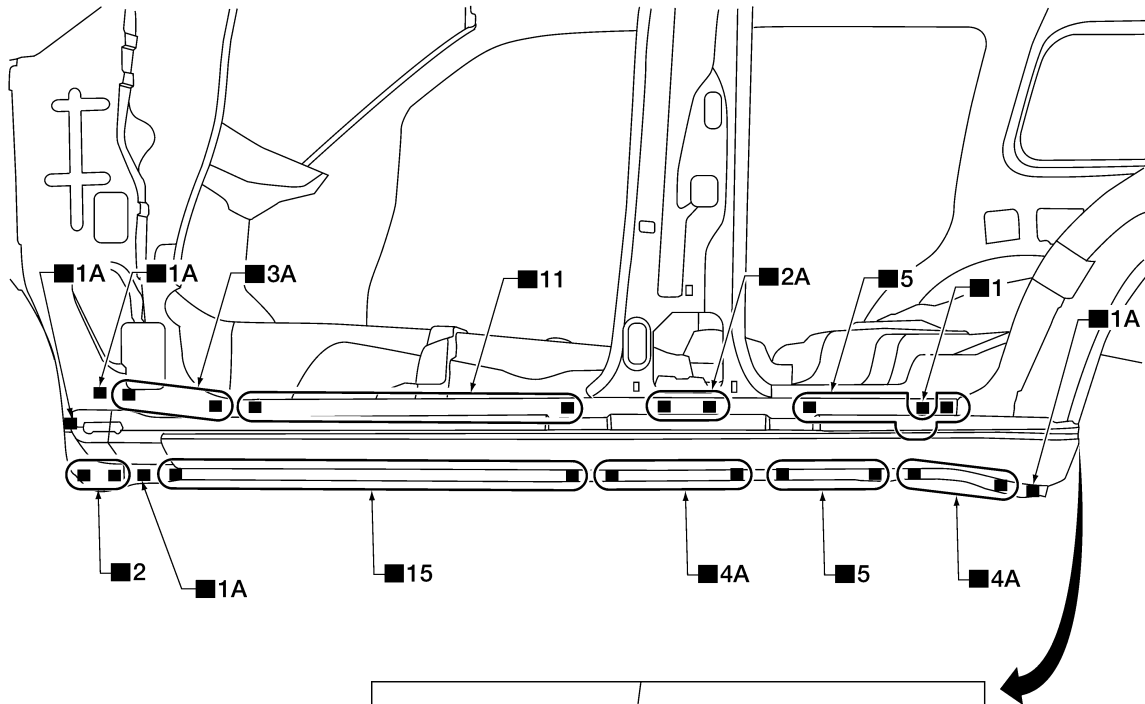


# BODY REPAIR

< SERVICE INFORMATION >

## OUTER SILL

### Service Joint



LIIA1813E

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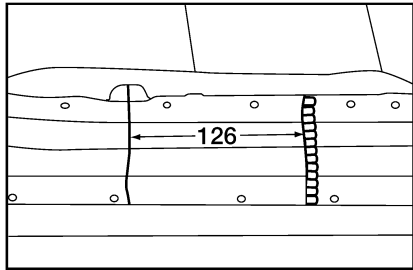
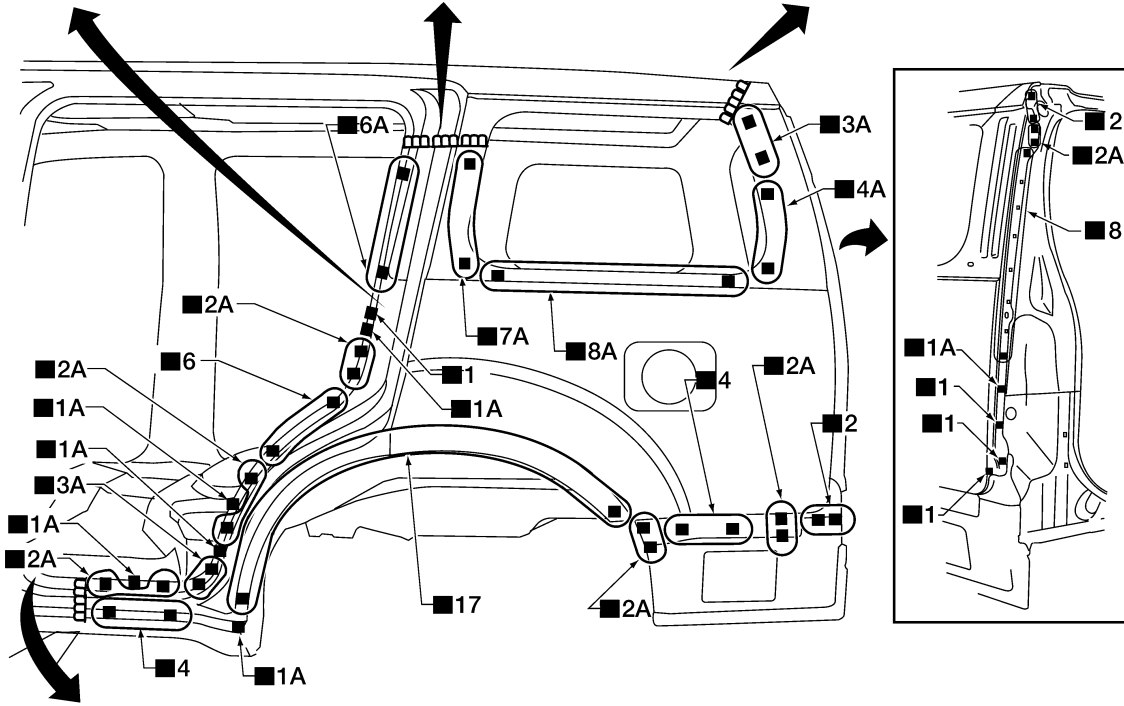
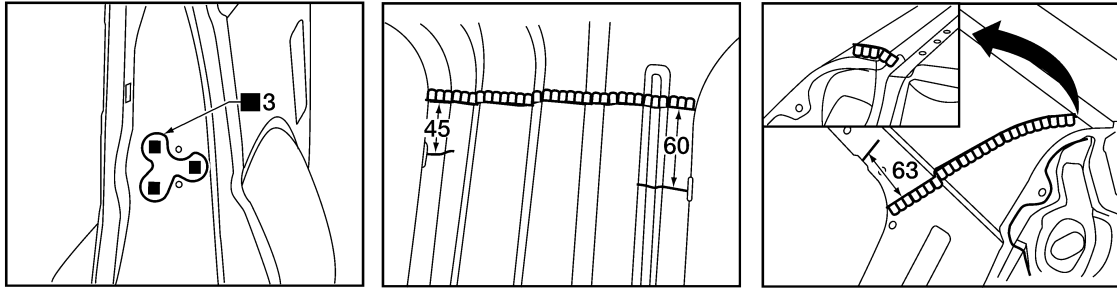
BRM

# BODY REPAIR

< SERVICE INFORMATION >

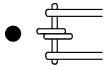
## REAR FENDER

### Service Joint

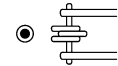


Unit: mm

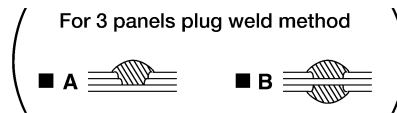
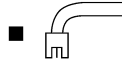
2-spot welds



3-spot welds



MIG Plug weld



MIG seam weld/  
Point weld



LIIA1814E

## REAR FENDER EXTENSION

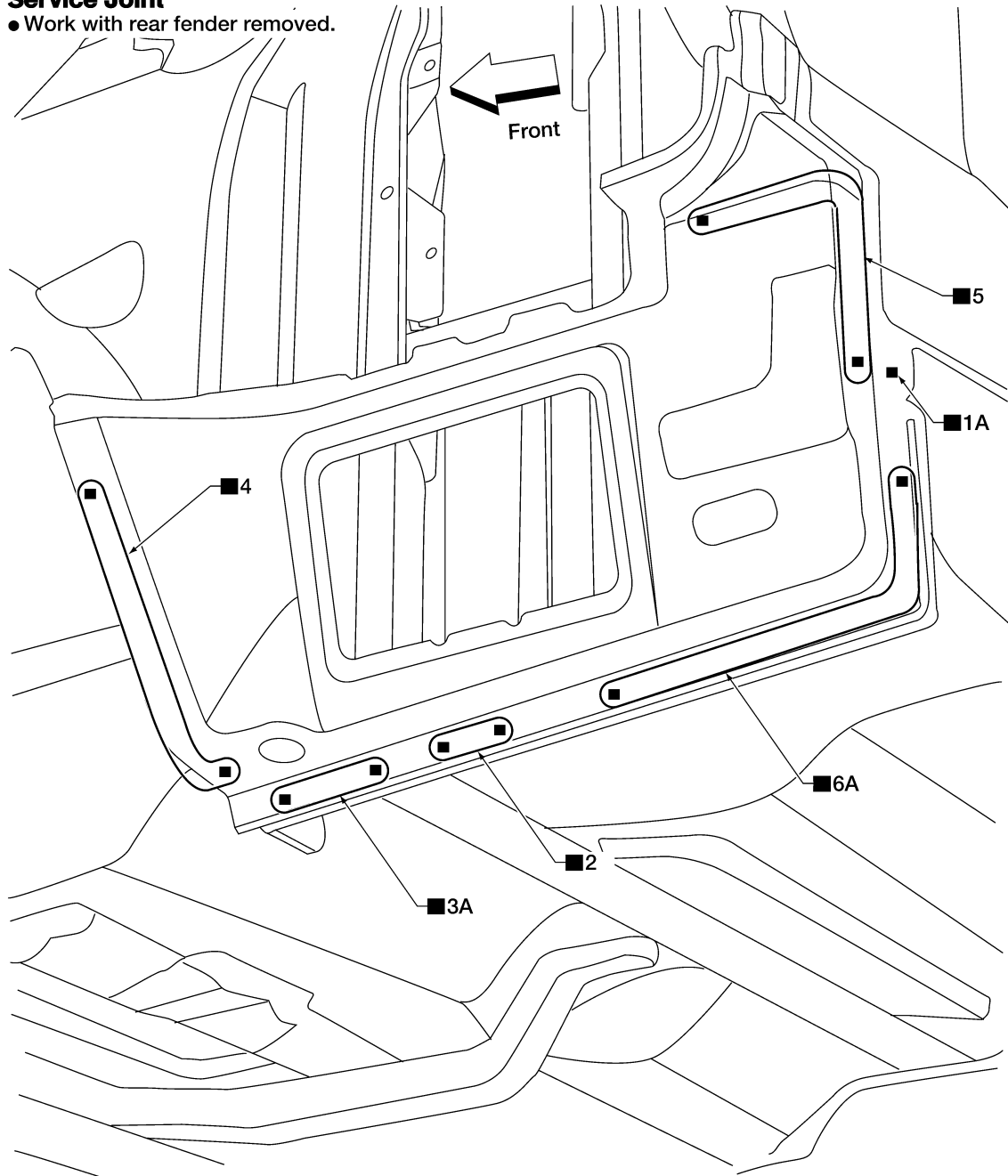
# BODY REPAIR

< SERVICE INFORMATION >

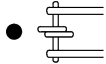
LH

## Service Joint

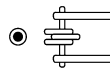
● Work with rear fender removed.



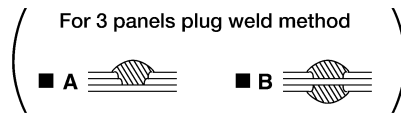
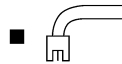
2-spot welds



3-spot welds



MIG Plug weld



MIG seam weld/  
Point weld



LIIA1818E

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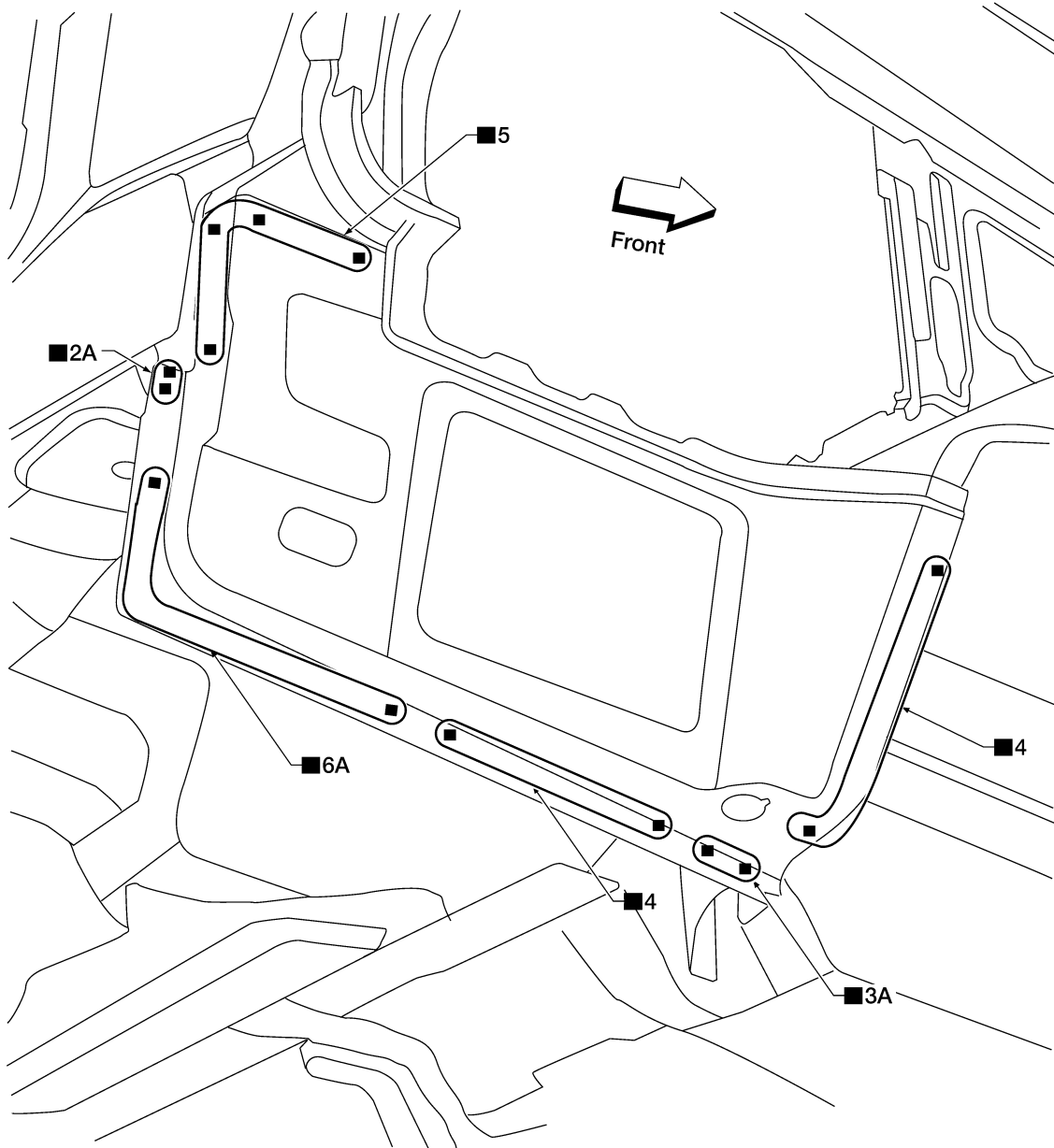
# BODY REPAIR

< SERVICE INFORMATION >

RH

## Service Joint

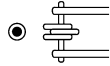
- Work with rear fender removed.



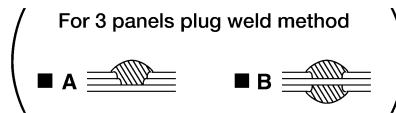
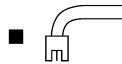
2-spot welds



3-spot welds



MIG Plug weld



MIG seam weld/  
Point weld



LIIA1819E

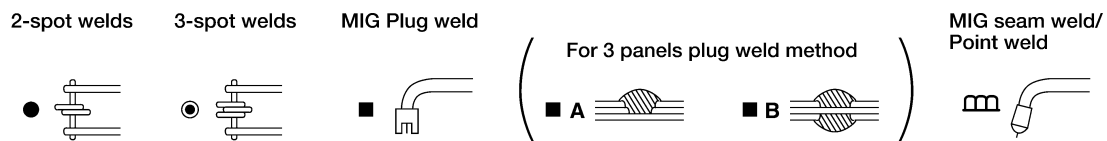
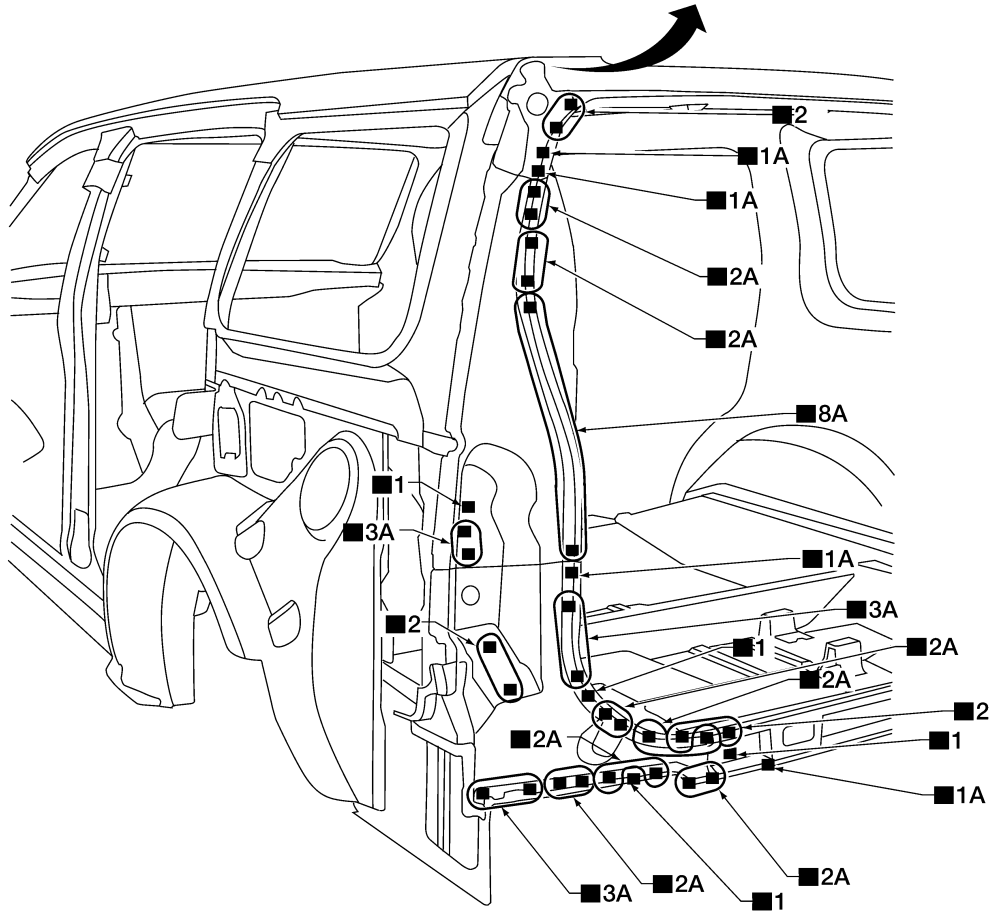
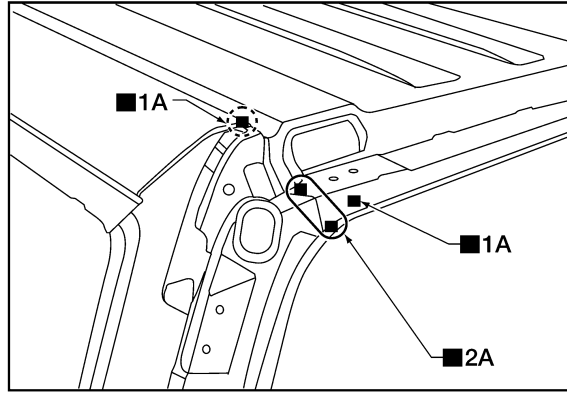
# BODY REPAIR

< SERVICE INFORMATION >

## REAR FENDER REINFORCEMENT

### Service Joint

- Work with rear fender and extension removed.



LIIA1820E

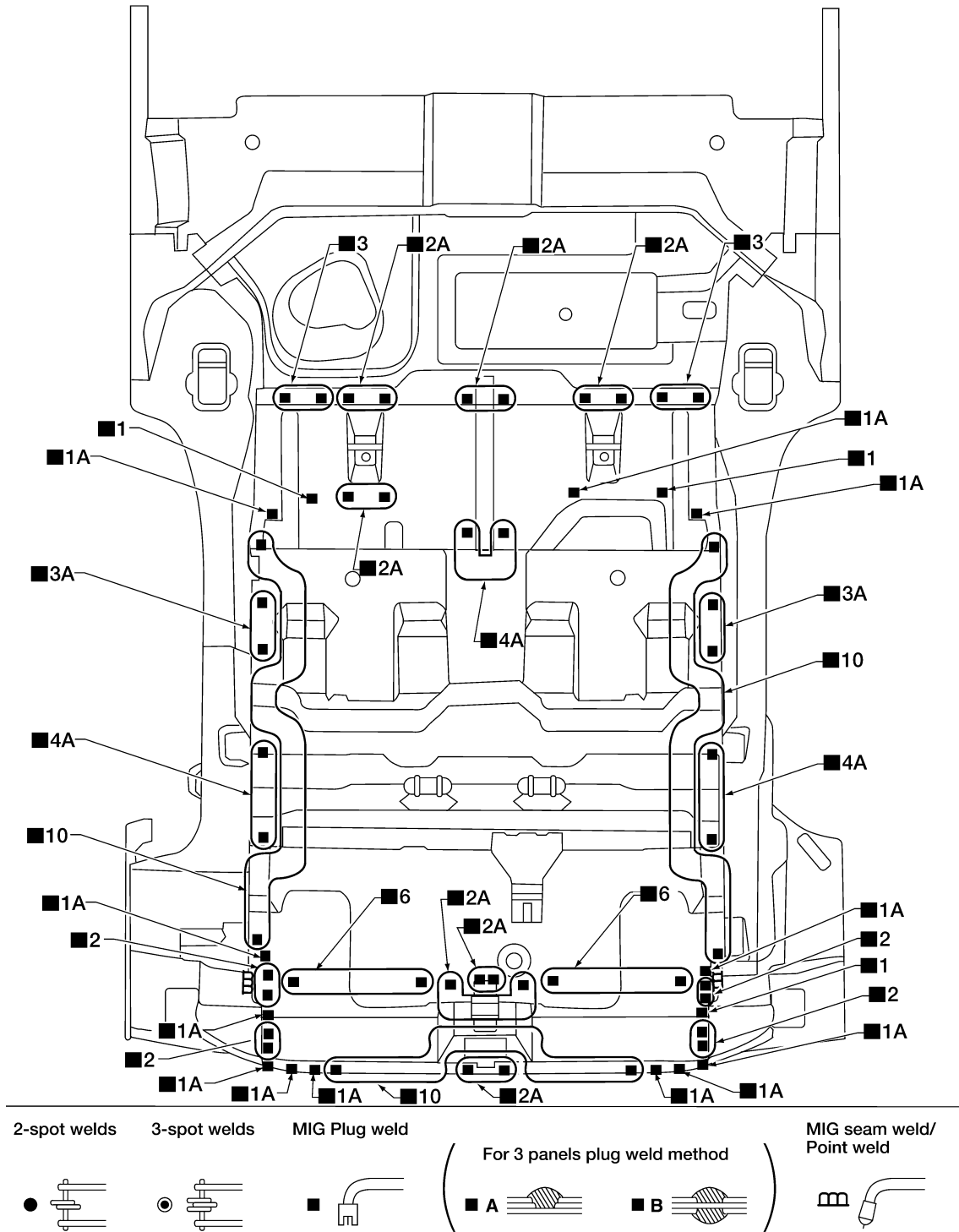
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# BODY REPAIR

< SERVICE INFORMATION >

REAR FLOOR REAR

## Service Joint



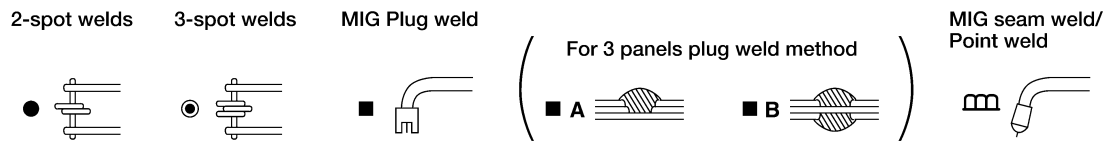
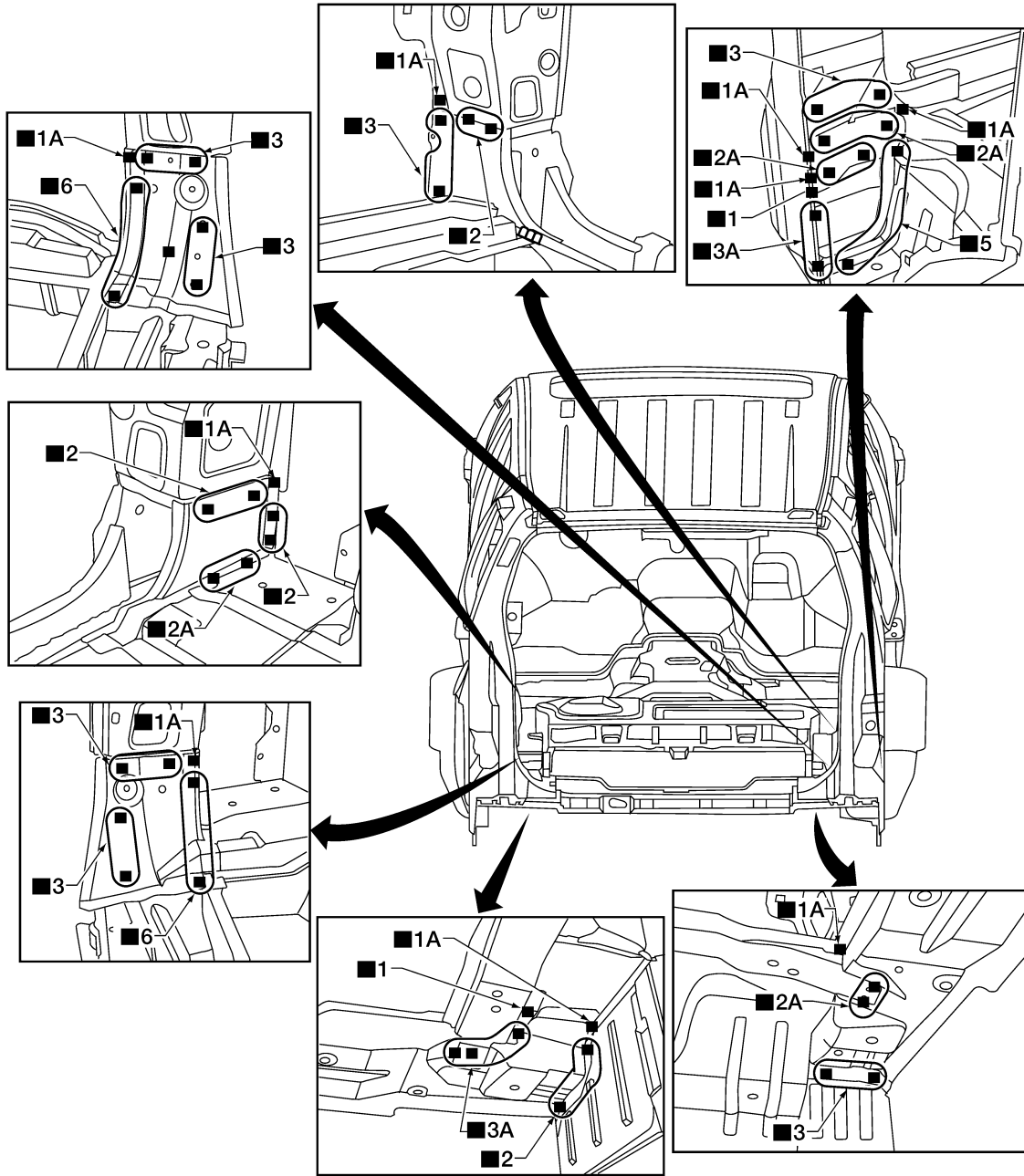
LIIA1815E

# BODY REPAIR

< SERVICE INFORMATION >

## REAR CROSSMEMBER

### Service Joint



LIIA1816E

### CRUSH HORN

#### CAUTION:

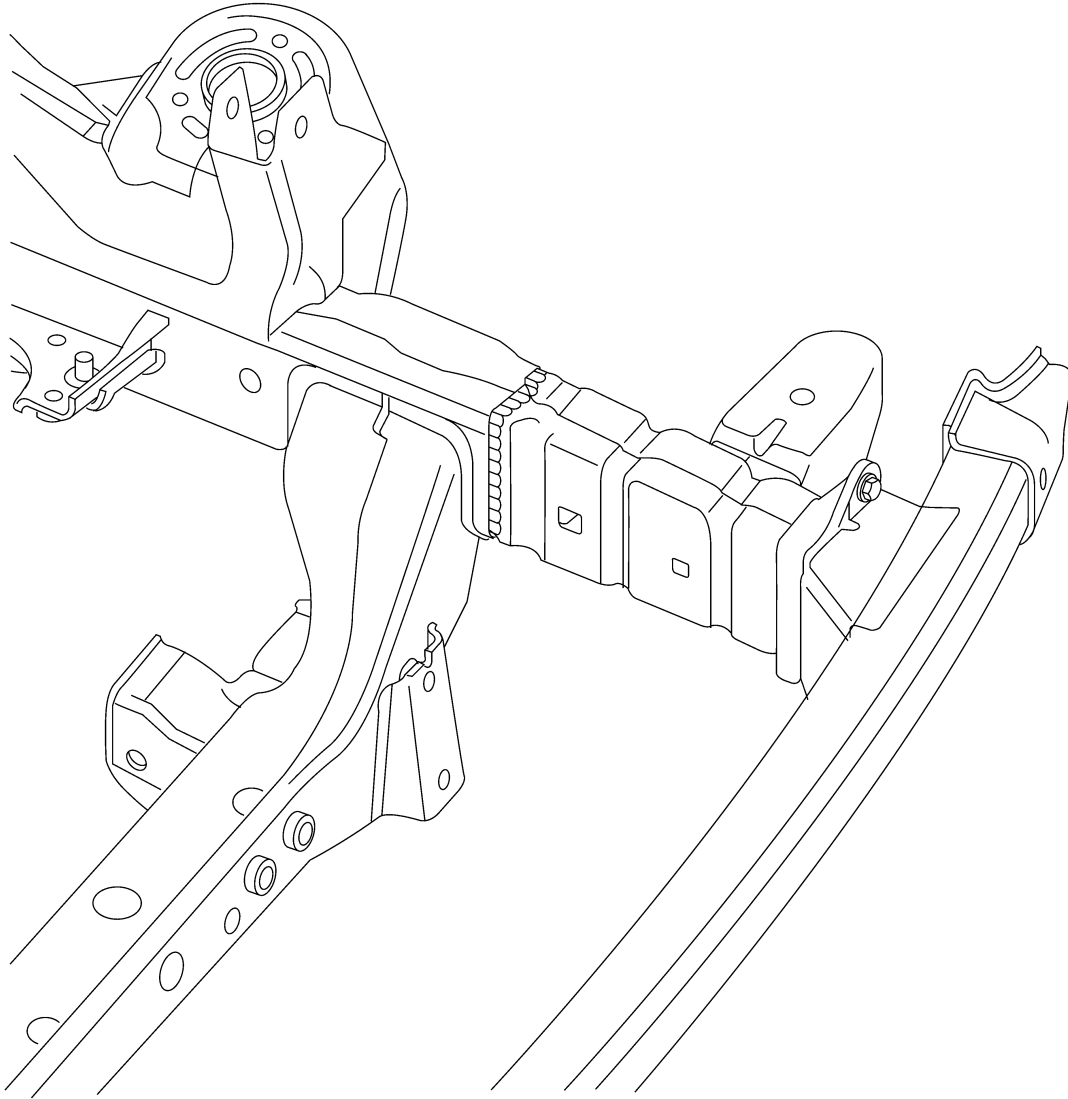
When replacing a damaged crush horn on N50 model, do not choose partial replacement method, such as cutting and butt-joint welding the crush horn.

# BODY REPAIR

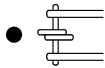
## < SERVICE INFORMATION >

Be sure to replace the entire crush horn when the crush horn has damage at the back of the body mounting bracket.

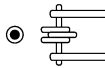
### Service Joint



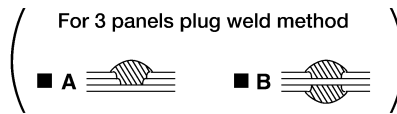
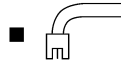
2-spot welds



3-spot welds



MIG Plug weld



MIG seam weld/  
Point weld



LIIA2148E