

SECTION **BRM**  
 BODY REPAIR

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# BODY EXTERIOR PAINT COLOR

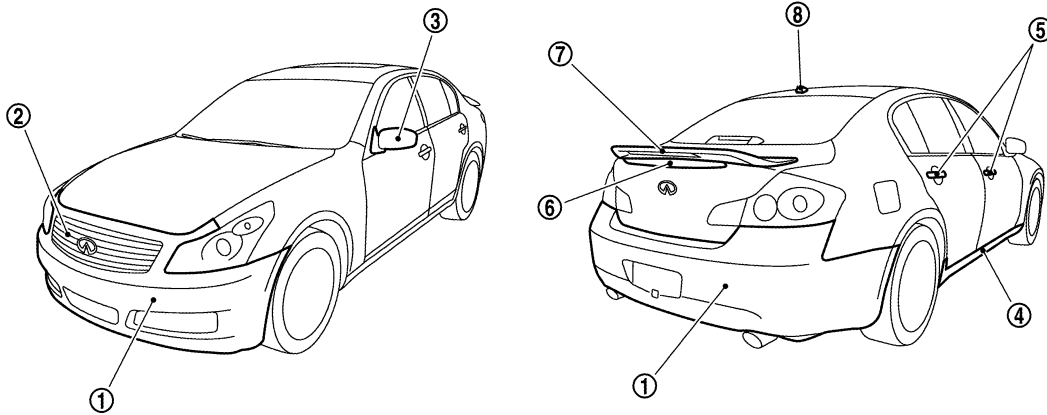
< VEHICLE INFORMATION >

## VEHICLE INFORMATION

### BODY EXTERIOR PAINT COLOR

#### Body Exterior Paint Color

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Component		Color code	BA51	BB30	BKH3	BK23	BK32	BK51	BK52	BQX1	
		Description	Red	Blue	Black	Silver	Yellowish Silver	Gray	Gray	White	
		Paint type <sup>Note</sup>	3P	M	2S	M	TM	M	PM	3P	
		Hard clear coat	-	-	-	-	-	-	-	-	-
1	Bumper fascia	Body color	BA51	BB30	BKH3	BK23	BK32	BK51	BK52	BQX1	
2	Front grille	Chromium-plate	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr	
3	Door outside mirror	Cover	Body color	BA51	BB30	BKH3	BK23	BK32	BK51	BK52	BQX1
4	Center mud-guard	Body color	BA51	BB30	BKH3	BK23	BK32	BK51	BK52	BQX1	
5	Door outside handle	Body color	BA51	BB30	BKH3	BK23	BK32	BK51	BK52	BQX1	
6	Trunk lid finisher	Chromium-plate	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr	
7	Rear spoiler	Body color	BA51	BB30	BKH3	BK23	BK32	BK51	BK52	BQX1	
8	Satellite radio antenna	Body color	BA51	BB30	BKH3	BK23	BK32	BK51	BK52	BQX1	

**NOTE:**

- 2S: Solid + Clear
- CS: Color clear solid
- M: Metallic
- P: 2-Coat pearl
- 3P: 3-Coat pearl
- FPM: Iron oxide pearl
- RPM: Multi flex color
- TPM: Titanium pearl metallic
- TM: Micro titanium metallic
- PM: Pearl metallic

# HANDLING PRECAUTIONS

< PRECAUTION >

## PRECAUTION

### HANDLING PRECAUTIONS

#### Precautions for Plastics

INFOID:000000001835430

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

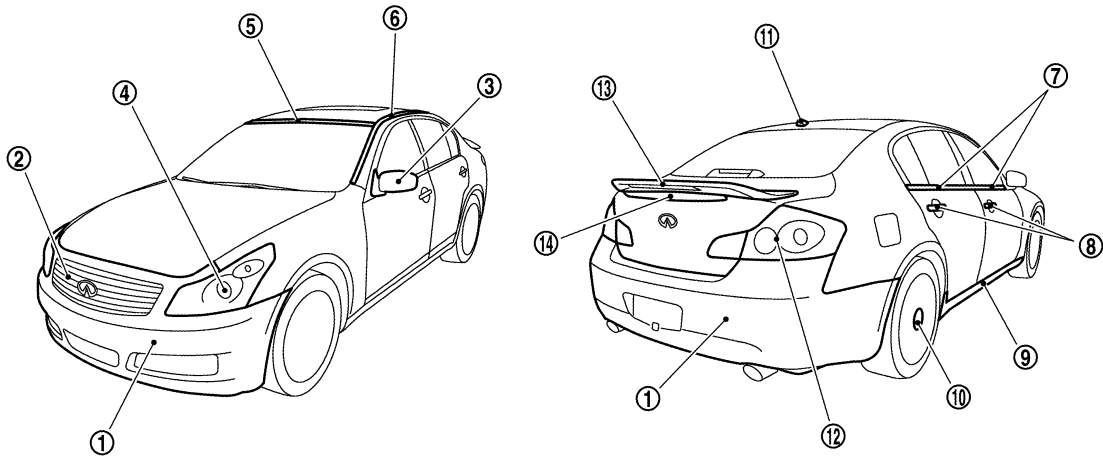
#### CAUTION:

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

#### LOCATION OF PLASTIC PARTS

# HANDLING PRECAUTIONS

< PRECAUTION >

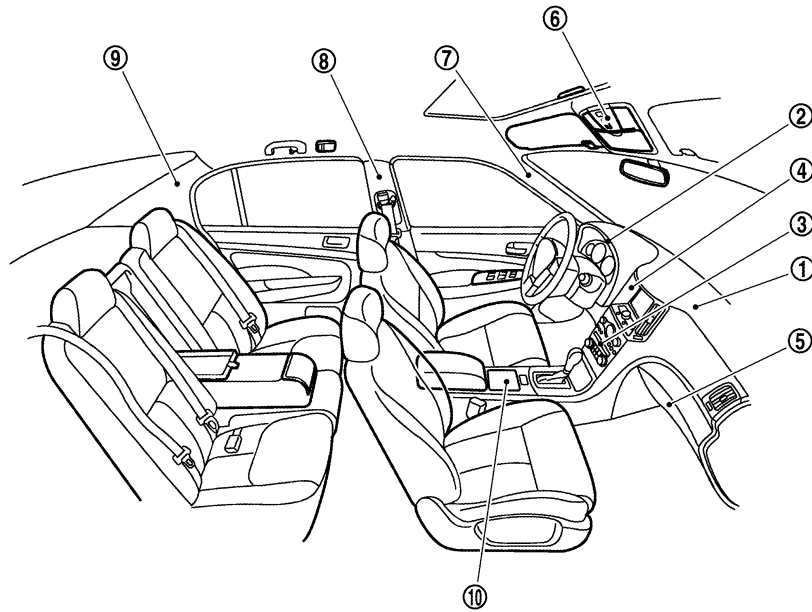


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Component		Material	Component		Material	
1	Bumper fascia	PP	8	Door outside handle	PC + PET	
2	Front grille	ABS	9	Center mudguard	PP	
3	Door outside mirror	Cover	ABS	10	Wheel disk cap	PC + ABS
		Housing	AAS	11	Satellite radio antenna	ASA + PC
		Base	PA + Glass fiber		12	Rear combination lamp (Rear Fender)
4	Head lamp	Lens	PC	Rear combination lamp (Trunk lid)		Lens PMMA Housing PC + ASA
		Housing	PP			
5	Windshield molding	TPO	13	Rear spoiler	UP + Glass fiber	
6	Roof side molding	PVC + Stainless	14	Trunk lid finisher	ABS	
7	Door outside molding	PVC + Stainless				

# HANDLING PRECAUTIONS

< PRECAUTION >



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Component		Material		Component		Material	
1	Instrument panel	Core	PP	5	Glove box	Core	ABS
		Pad	PUR			Pad	PUR
		Skin	TPU			Skin	PVC
2	Cluster lid A	Upper	ABS	6	Map lamp	Lens	PC
		Lower	PP			Housing	PP
3	Cluster lid C	Standard finisher	ABS	7	Front pillar garnish	PP	
		Wood finisher	PC + ABS	8	Center pillar garnish	PP	
9	Rear pillar finisher					PP	
						PP + PVC	
4	Cluster lid D	PC + ABS					
10	Console body					PP + PVC	

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# BODY COMPONENT PARTS

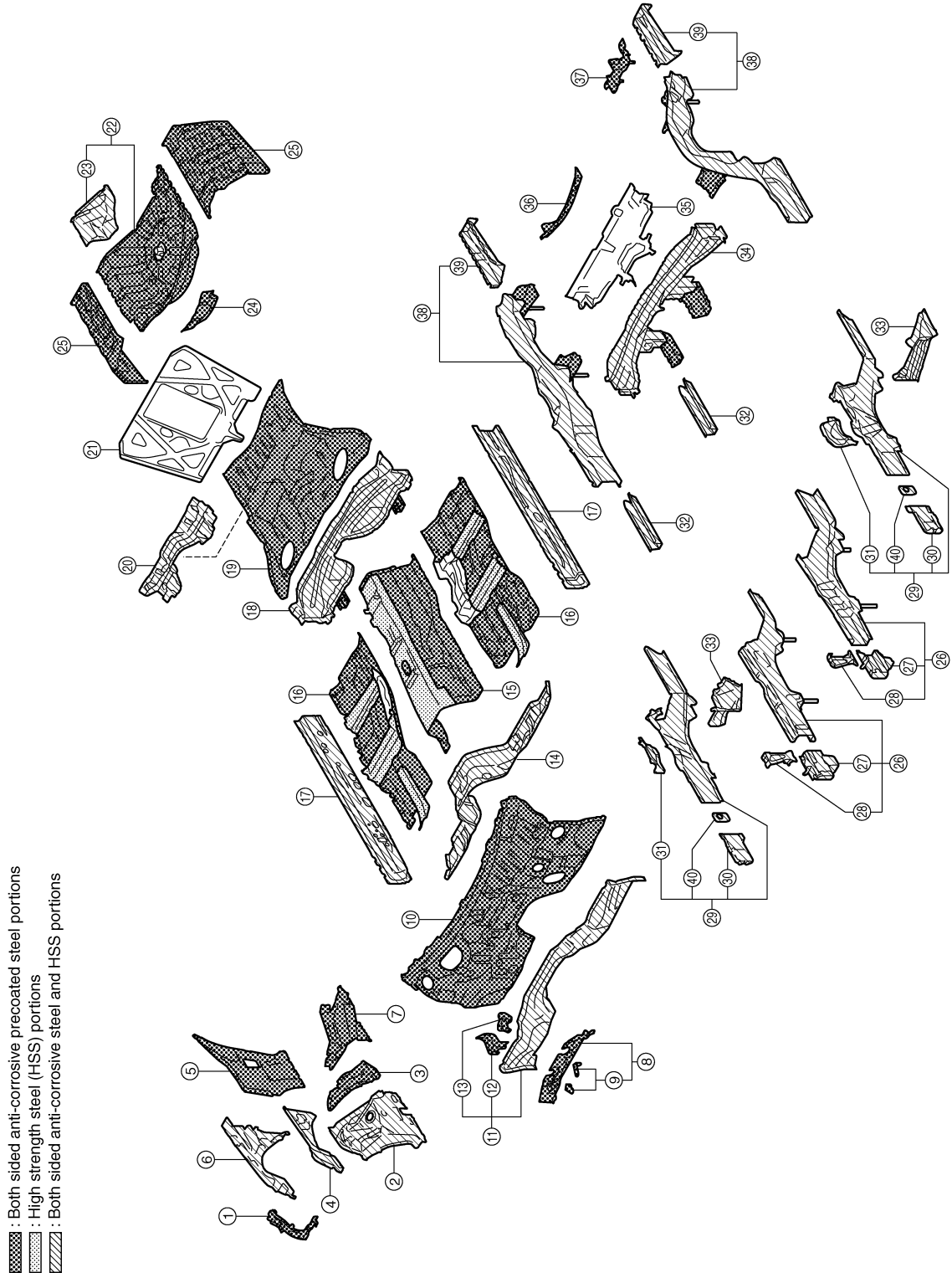
< REMOVAL AND INSTALLATION >

## REMOVAL AND INSTALLATION

### BODY COMPONENT PARTS

#### Underbody Component Parts

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# BODY COMPONENT PARTS

## < REMOVAL AND INSTALLATION >

1. Radiator core support assembly (RH & LH)	2. Front strut housing (RH & LH)	3. Lower rear hoodledge (RH & LH)	A
4. Upper front hoodledge (RH & LH)	5. Upper rear hoodledge (RH & LH)	6. Hoodledge reinforcement (RH & LH)	B
7. Upper side cowl top (RH & LH)	8. Upper front cowl top assembly	9. Cowl top bracket	B
10. Upper dash	11. Lower dash crossmember assembly	12. Lower outer battery support bracket	C
13. Lower battery support bracket	14. Lower dash	15. Center front floor	C
16. Front floor (RH & LH)	17. Inner sill (RH & LH)	18. Rear seat crossmember reinforcement assembly	C
19. Rear floor front	20. Rear floor seat belt anchor reinforcement	21. Rear seat back support	D
22. Rear floor rear	23. Rear tie down hook	24. Differential mounting bracket assembly	D
25. Rear floor side (RH & LH)	26. Front side member assembly (RH & LH)	27. Front side member front extension (RH & LH)	E
28. Front side member connector assembly (RH & LH)	29. Front side member closing plate assembly (RH & LH)	30. Front side member front closing plate (RH & LH)	E
31. Front side member center closing plate (RH & LH)	32. Front side member rear extension (RH & LH)	33. Front side member outrigger assembly (RH & LH)	F
34. Rear seat crossmember	35. 2nd rear crossmember	36. Rear crossmember	G
37. Muffler mounting bracket assembly	38. Rear side member assembly (RH & LH)	39. Rear side member extension (RH & LH)	G
40. Front side rear closing reinforcement (RH & LH)			H

**NOTE:**

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

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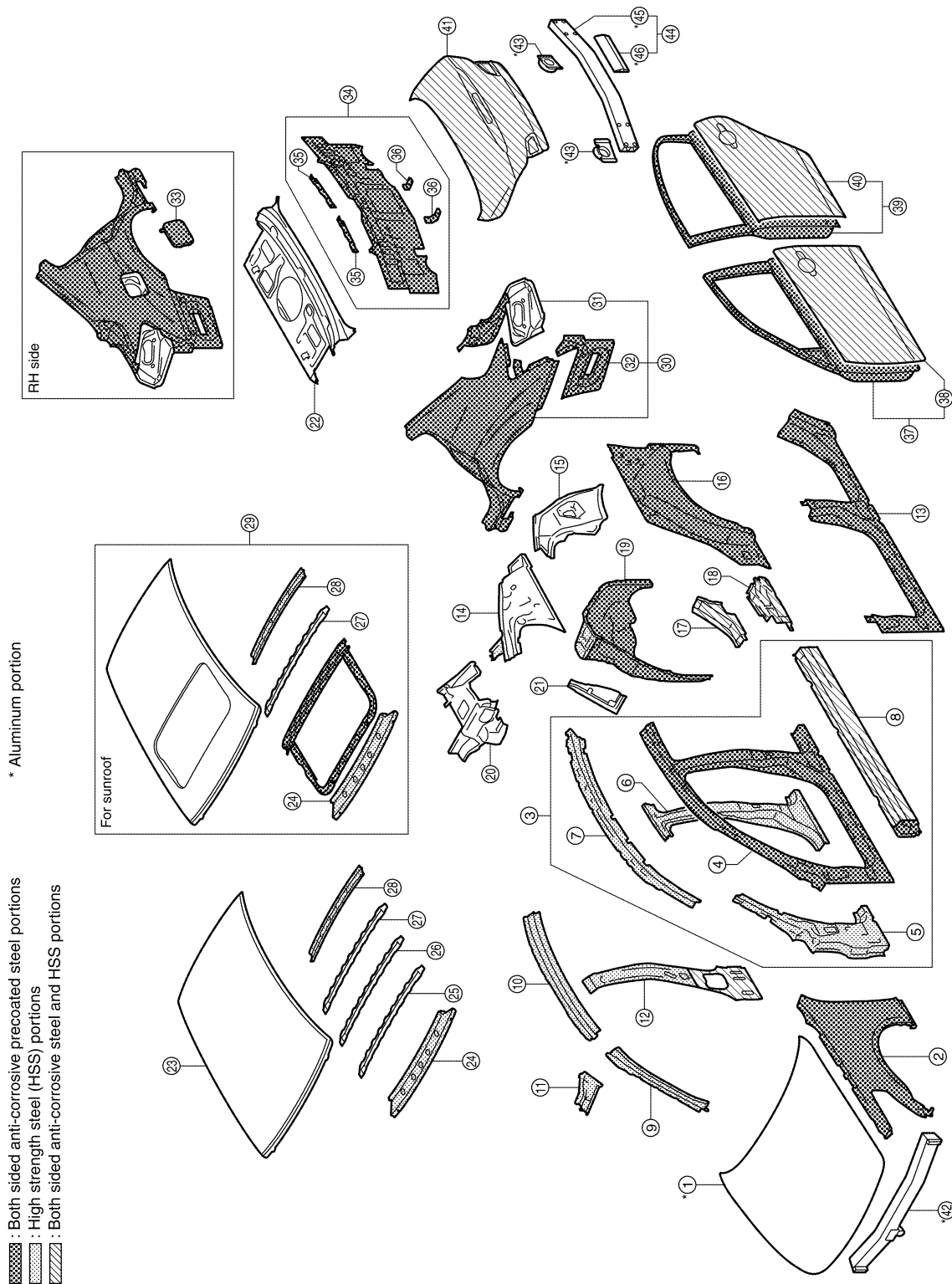
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# BODY COMPONENT PARTS

< REMOVAL AND INSTALLATION >

## Body Component Parts

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- |   |                                       |  |
|---|---------------------------------------|--|
| 1. Hood   | 2. Front fender (RH & LH)             | 3. Side body assembly (RH & LH)            |
| 4. Outer front side body (RH & LH)              | 5. Front pillar brace (RH & LH)       | 6. Center pillar reinforcement (RH & LH)   |
| 7. Outer side roof rail reinforcement (RH & LH) | 8. Outer sill reinforcement (RH & LH) | 9. Inner roof rail reinforcement (RH & LH) |



# BODY COMPONENT PARTS

## < REMOVAL AND INSTALLATION >

10. Inner side roof rail (RH & LH)	11. Front roof rail brace (RH & LH)	12. Inner center pillar (RH & LH)	A
13. Outer sill (RH & LH)	14. Inner rear pillar (RH & LH)	15. Inner rear pillar reinforcement (RH & LH)	
16. Outer rear wheelhouse (RH & LH)	17. Upper outer rear wheelhouse extension (RH & LH)	18. Lower outer rear wheelhouse extension (RH & LH)	B
19. Inner rear wheelhouse (RH & LH)	20. Side parcel shelf (RH & LH)	21. Seat back support (RH & LH)	C
22. Parcel shelf with rear waist	23. Roof	24. Front roof rail	
25. Roof bow No.1	26. Roof bow No.2	27. Roof bow No.3	D
28. Rear roof rail	29. Roof assembly	30. Rear fender assembly (RH & LH)	
31. Tail pillar assembly (RH & LH)	32. Rear fender extension (RH & LH)	33. Fuel filler lid	E
34. Rear panel assembly	35. Rear bumper bracket (RH & LH)	36. Rear side bumper bracket (RH & LH)	
37. Front door assembly (RH & LH)	38. Outer front door panel (RH & LH)	39. Rear door assembly (RH & LH)	F
40. Outer rear door panel (RH & LH)	41. Trunk lid	42. Inner center front bumper reinforcement	
43. Rear bumper stay (RH & LH)	44. Inner center rear bumper reinforcement assembly	45. Center rear bumper reinforcement	G
46. Rear bumper overrider assembly			H

### NOTE:

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

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# CORROSION PROTECTION

< REMOVAL AND INSTALLATION >

## CORROSION PROTECTION

### Description

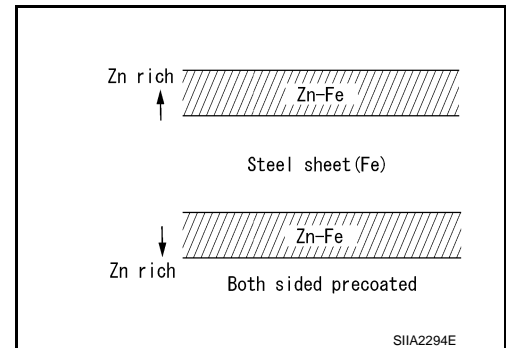
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To provide improved corrosion prevention, the following anti-corrosive measures have been implemented in NISSAN production plants. When repairing or replacing body panels, it is necessary to use the same anti-corrosive measures.

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

To improve repairability and corrosion resistance, a new type of anti-corrosive precoated steel sheet is 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.



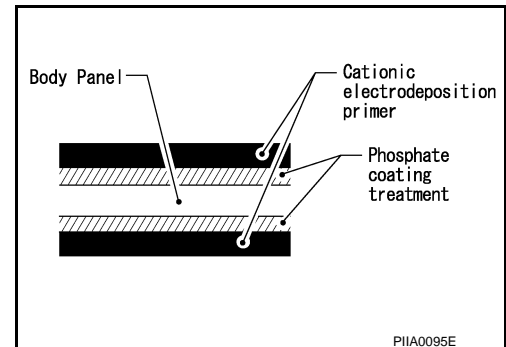
NISSAN genuine parts are fabricated from galvannealed steel. Therefore, it is recommended that NISSAN genuine parts or an equivalent be used for panel replacement to maintain the anti-corrosive performance built into the vehicle at the factory.

#### Phosphate Coating Treatment and Cationic Electrodeposition Primer

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

#### **CAUTION:**

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



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

### Undercoating

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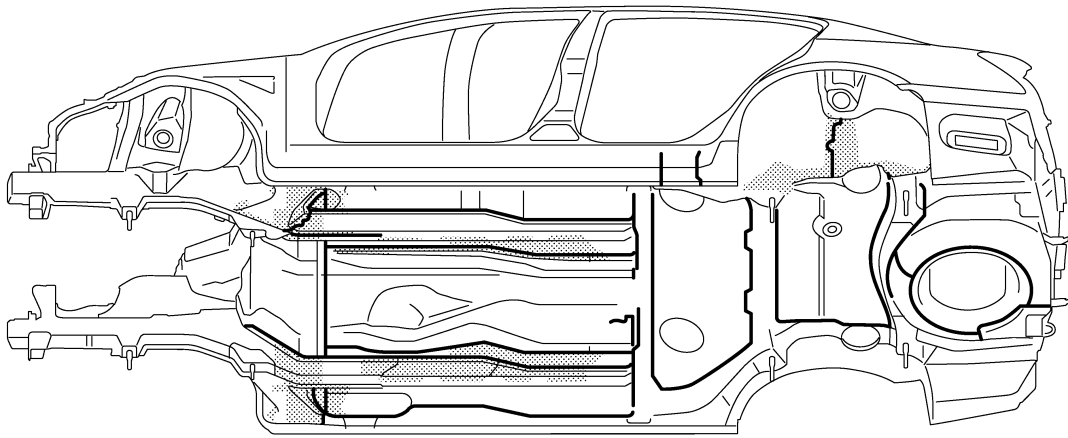
The underside of the floor and wheelhouse are undercoated to prevent rust, vibration, noise and stone chipping. Therefore, when such a panel is replaced or repaired, apply undercoating to that part. Use an undercoating which is rust resistant, soundproof, vibration-proof, shock-resistant, adhesive, and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

#### Precautions in Undercoating


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


# CORROSION PROTECTION

< REMOVAL AND INSTALLATION >



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: Undercoated areas

: Sealed portions

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# BODY SEALING

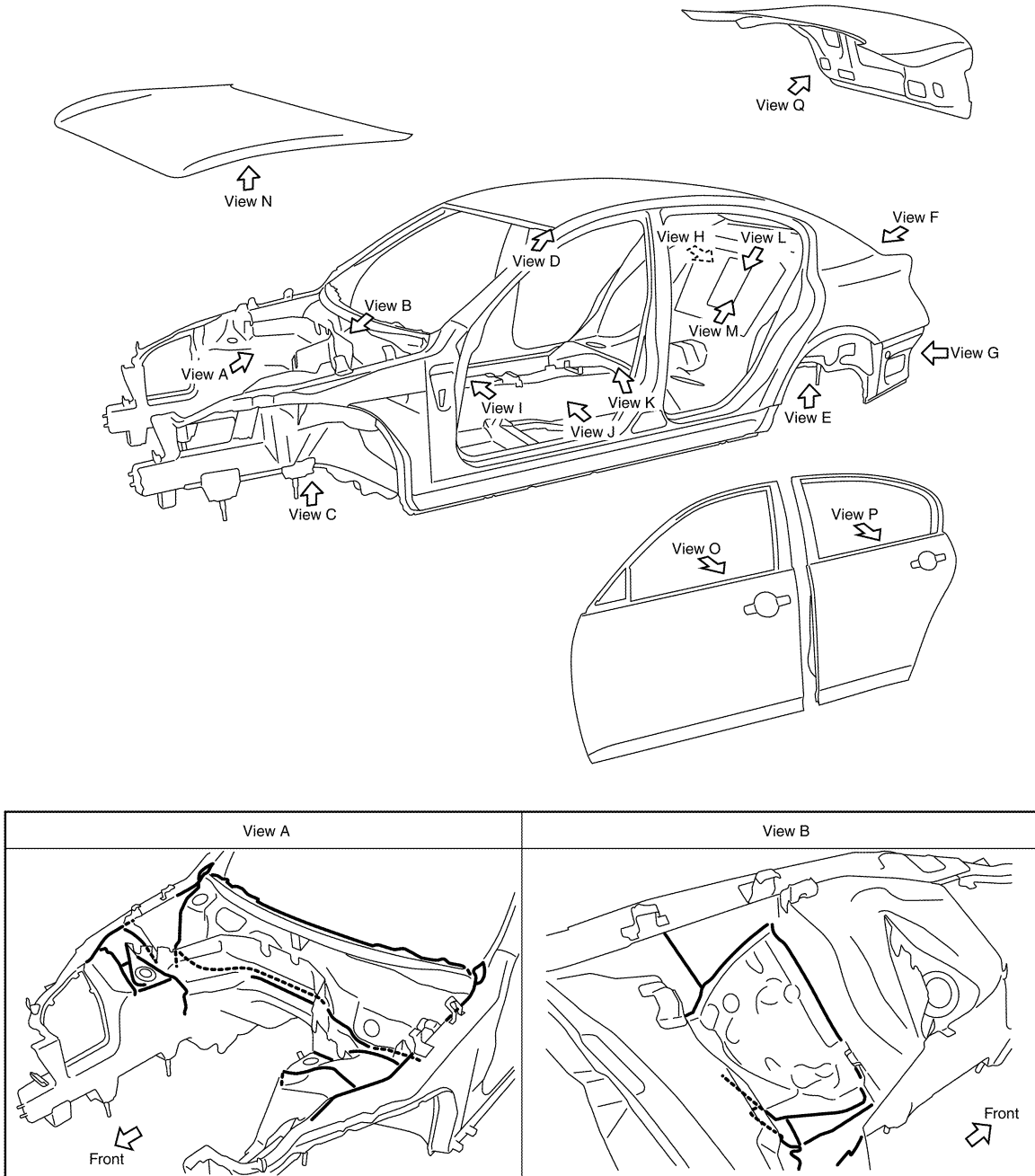
< REMOVAL AND INSTALLATION >

## BODY SEALING

### Description

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The following figure shows the areas that are sealed at the factory. Sealant that is 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.

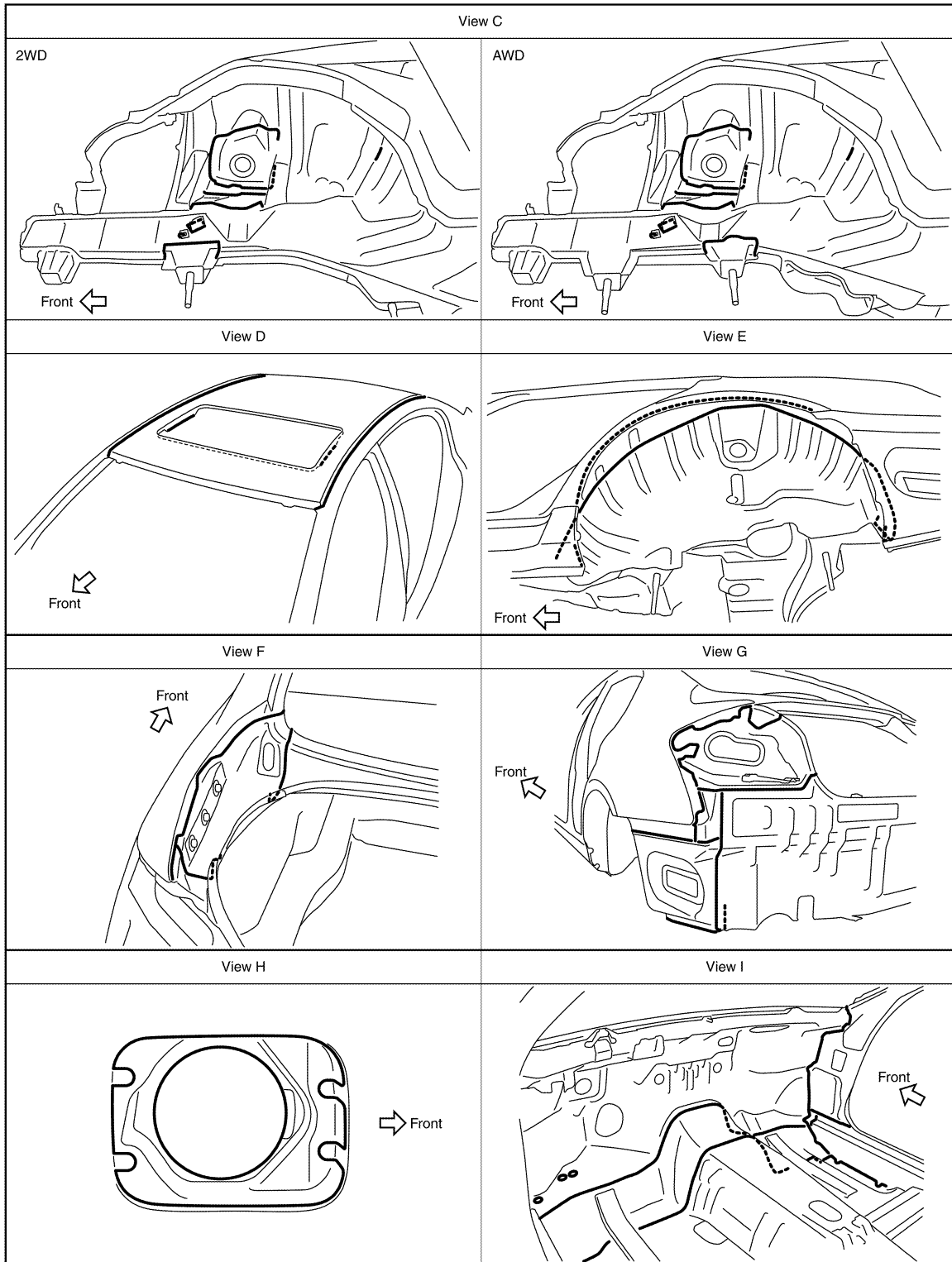


JSKIA0008GB

—: Sealed portions

# BODY SEALING

## < REMOVAL AND INSTALLATION >



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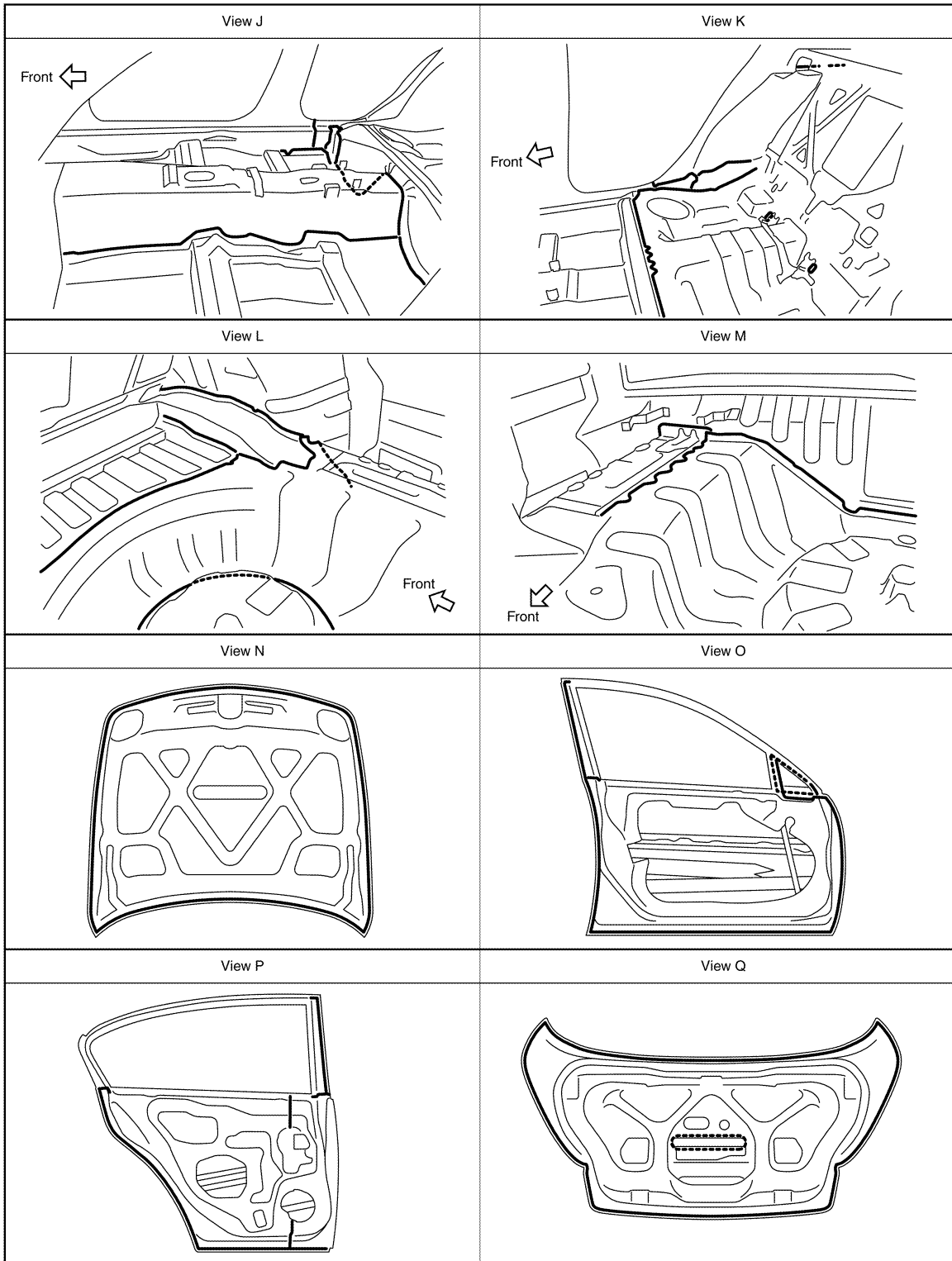
**—**: Sealed portions

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# BODY SEALING

## < REMOVAL AND INSTALLATION >



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—: Sealed portions

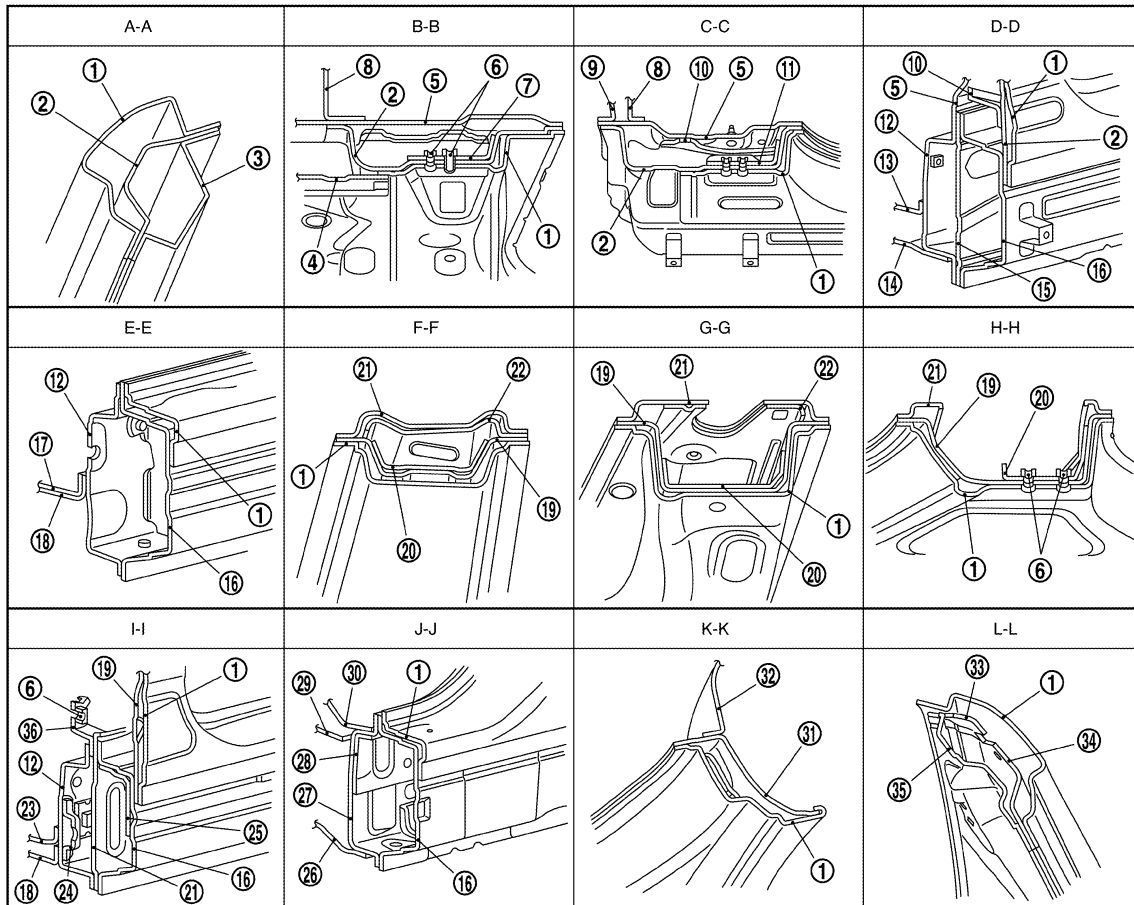
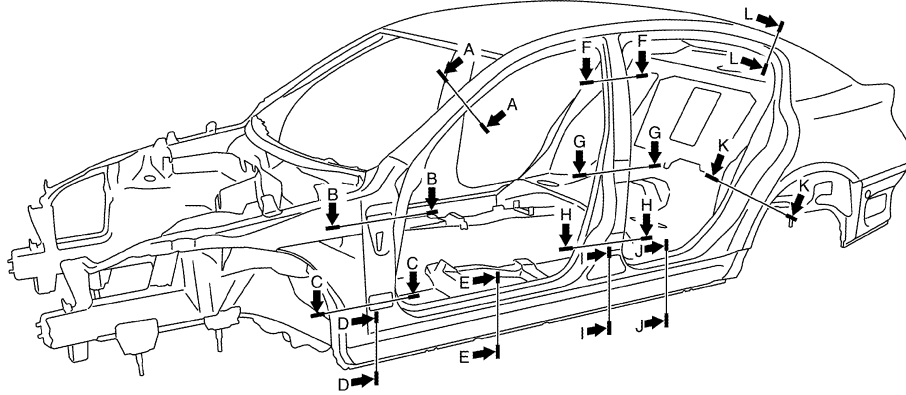
# BODY CONSTRUCTION

< REMOVAL AND INSTALLATION >

## BODY CONSTRUCTION

### Body Construction

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## BODY CONSTRUCTION

### < REMOVAL AND INSTALLATION >

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1	Outer side body	2	Front pillar hinge brace	3	Inner front side roof rail
4	Hoodledge reinforcement	5	Upper rear hoodledge	6	Nut
7	Upper hinge plate	8	Upper dash	9	Lower dash crossmember
10	Lower front pillar gusset	11	Lower hinge plate	12	Inner sill
13	Lower dash	14	Front side member outrigger	15	Lower front pillar reinforcement
16	Outer sill reinforcement	17	2nd crossmember	18	Front floor
19	Center pillar reinforcement	20	Center pillar seat belt reinforcement	21	Upper inner center pillar
22	Center pillar seat belt anchor	23	3rd crossmember	24	Inner center sill reinforcement
25	Outer center sill reinforcement	26	Rear seat crossmember	27	Rear side member front
28	Rear side member front reinforcement	29	Lower rear seat crossmember reinforcement	30	Upper rear seat crossmember reinforcement
31	Outer rear wheelhouse	32	Inner rear wheelhouse	33	Side roof rail reinforcement
34	Inner rear pillar reinforcement	35	Inner rear pillar	36	Seat belt anchor bracket



# BODY ALIGNMENT

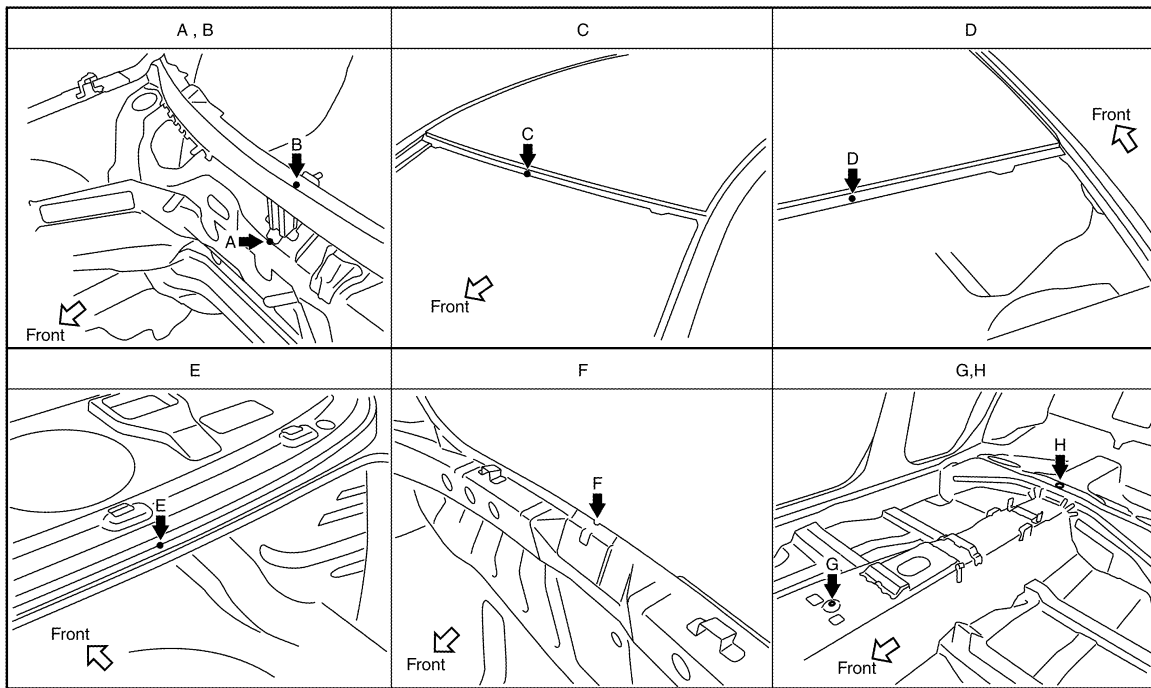
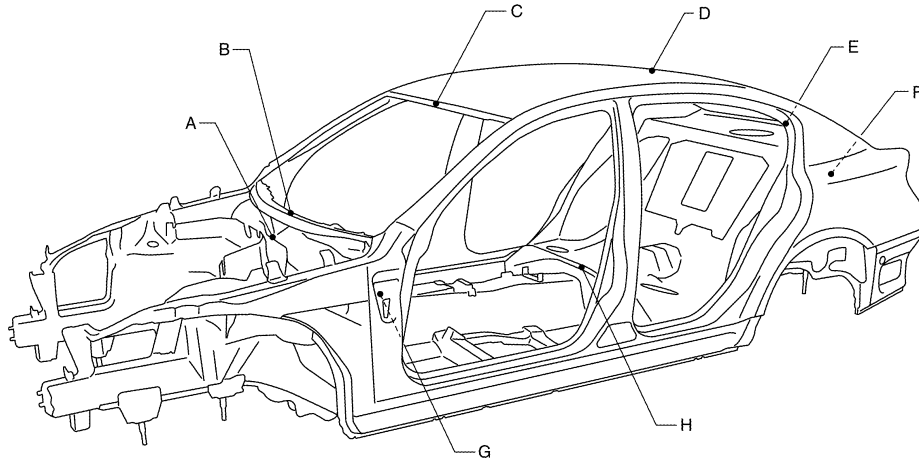
< REMOVAL AND INSTALLATION >

## BODY ALIGNMENT

### Body Center Marks

INFOID:000000001835437

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



JSKIA0012GB

Unit: mm (in)

Points	Portion	Marks
A, B	Upper dash	Embossment
C	Front roof	Embossment
D	Rear roof	Embossment
E	Rear waist panel	Embossment
F	Rear panel	Indent
G	Front floor	Hole 14×12 (0.55×0.47)
H	Rear floor	Hole φ6 (0.24)

# BODY ALIGNMENT

## < REMOVAL AND INSTALLATION >

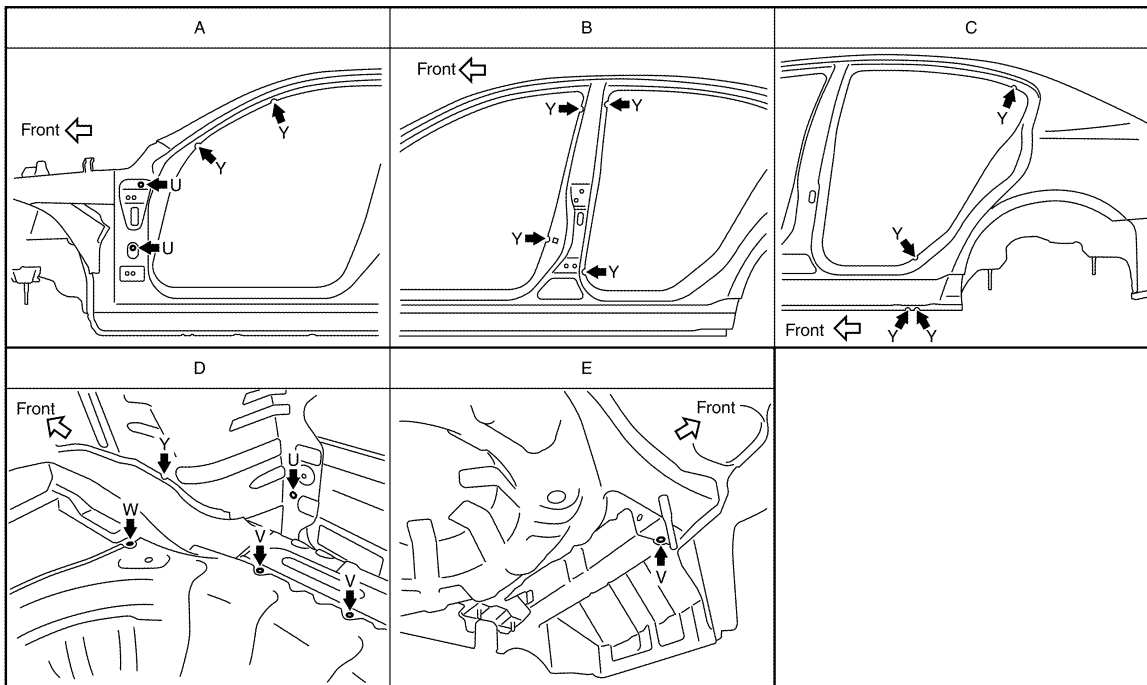
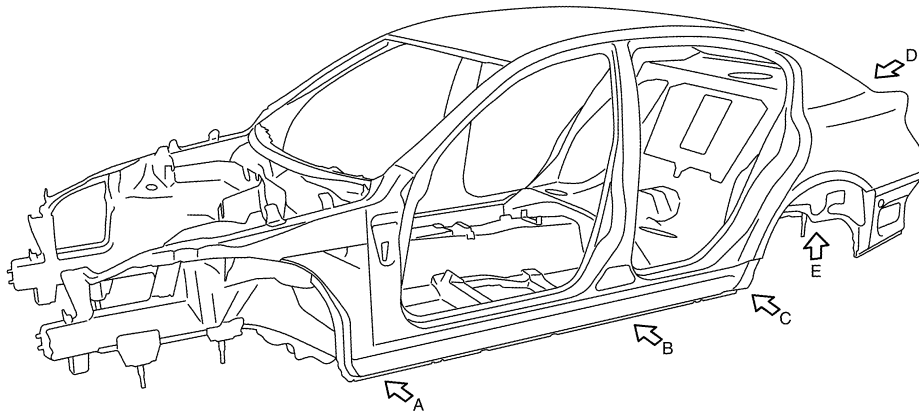
### Panel Parts Matching Marks

INFOID:000000001835438

A mark is 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.



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### Description

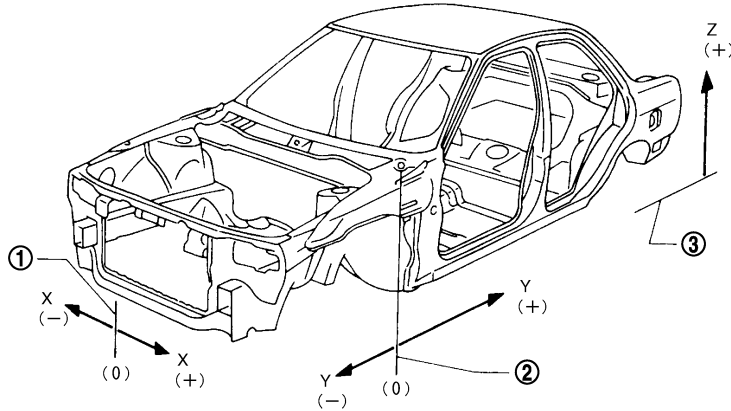
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- All dimensions indicated in the figures are actual.
- When using a tracking gauge, adjust both pointers to equal length. Then check the pointers and gauge itself to make sure there is no free play.

# BODY ALIGNMENT

## < REMOVAL AND INSTALLATION >

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



JSKIA0073GB

1. Vehicle center

2. Front axle center

3. Imaginary base line

## Engine Compartment

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### Measurement

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

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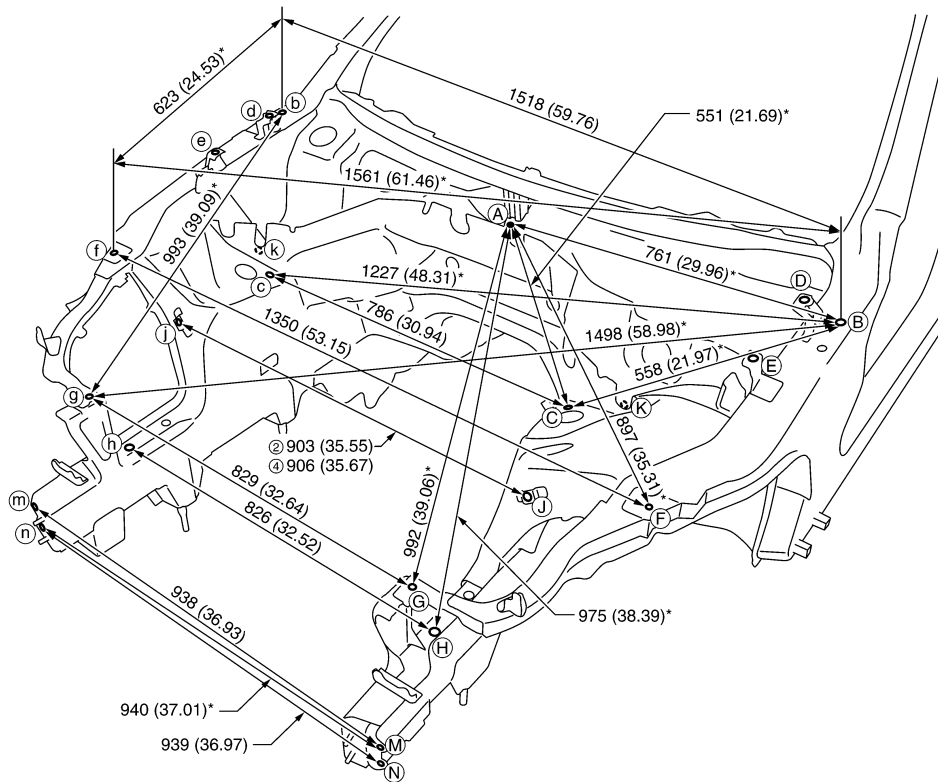
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# BODY ALIGNMENT

< REMOVAL AND INSTALLATION >

②: 2WD    ④: AWD

Unit : mm (in)



JSKIA0015GB

«Engine room»

Unit: mm (in)

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
A - B	761 (29.96)*		B - C	558 (21.97)*		C - c	786 (30.94)		M - m	938 (36.93)	
A - C	551 (21.69)*		B - c	1227 (48.31)*		F - f	1350 (53.15)		M - n	940 (37.01)*	
A - F	897 (35.31)*		B - f	1561 (61.46)*		G - g	829 (32.64)		N - n	939 (36.97)	
A - G	992 (39.06)*		b - f	623 (24.53)*		H - h	826 (32.52)				
A - H	975 (38.39)*		B - g	1498 (58.98)*		J - j	903 (35.55)	2WD			
B - b	1518 (59.76)		b - g	993 (39.09)*		J - j	906 (35.67)	AWD			

«The others»

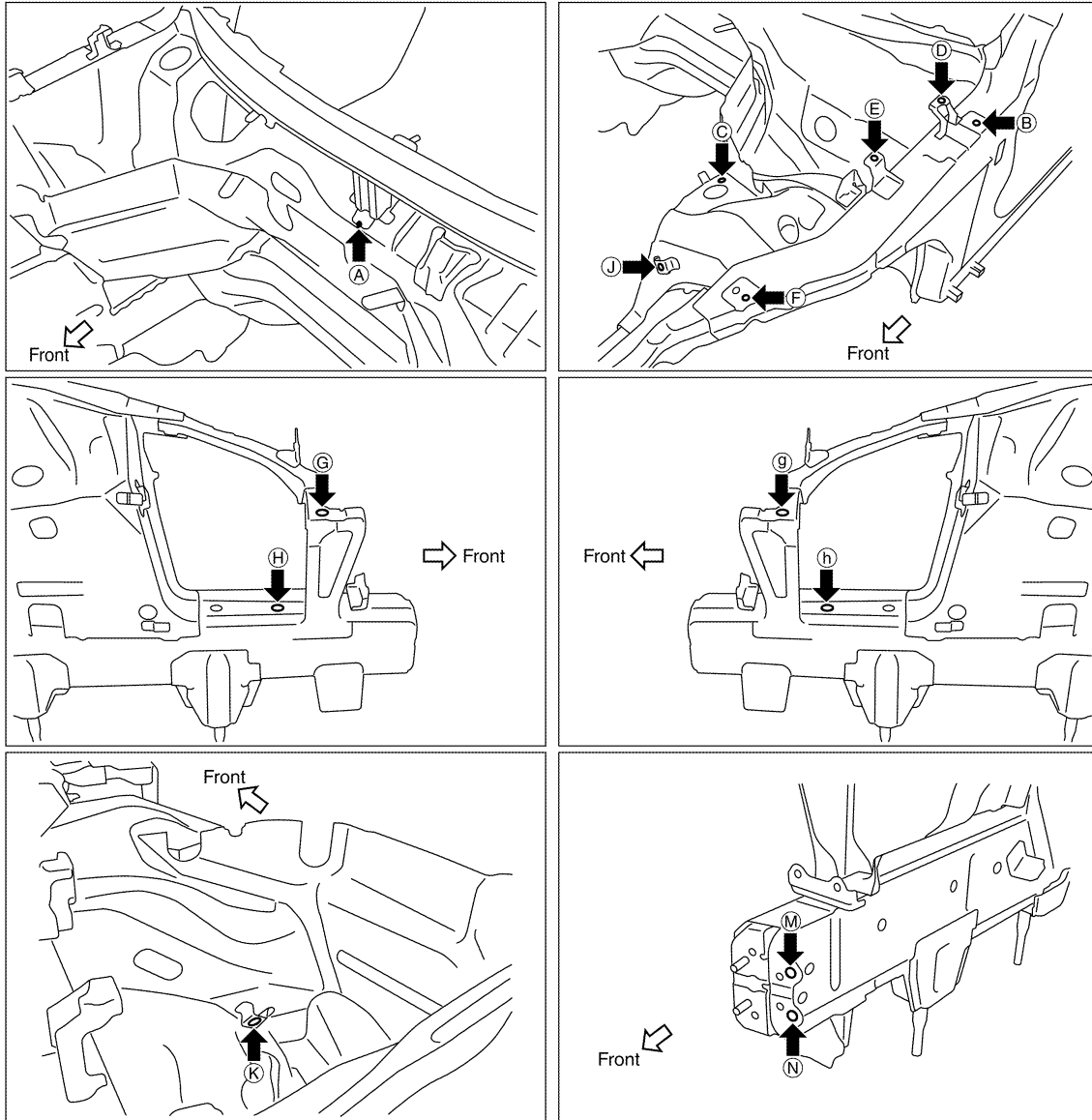
Unit: mm (in)

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
A - D	706 (27.80)*		C - j	875 (34.45)*	2WD	D - d	1393 (54.84)		K - k	903 (35.55)	2WD
A - E	734 (28.90)*		C - j	878 (34.57)*	AWD	E - e	1374 (54.09)		K - k	906 (35.67)	AWD

## Measurement Points

# BODY ALIGNMENT

## < REMOVAL AND INSTALLATION >



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Unit: mm (in)

Point	Material	Point	Material
A	Upper dash positioning mark enter of center positioning mark	G, g	Radiator core support hole center $\phi$ 6 (0.24)
B	Hood hinge installing hole center $\phi$ 12 (0.47)	H, h	Front side member hole center $\phi$ 20 (0.79)
C, c	Front strut installing hole center $\phi$ 11 (0.43)	J, j, K, k	Nut holder hole center $\phi$ 16 (0.63)
D, d, E, e	Front fender installing hole center $\phi$ 7 (0.28)	M, m, N, n	Front bumper stay installing hole center $\phi$ 11 (0.43)
F, f	Cowl cover installing hole center $\phi$ 6 (0.24)		

### Underbody

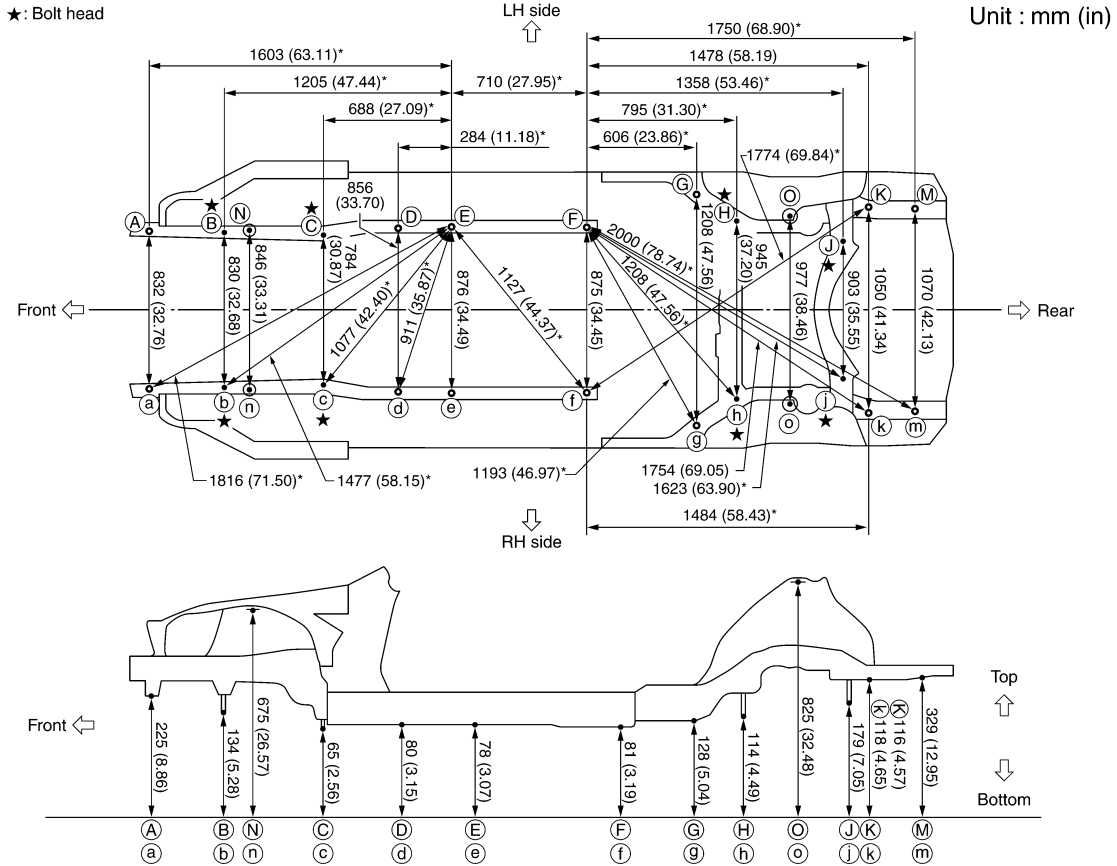
INFOID:000000001835441

#### Measurement (2WD)

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

# BODY ALIGNMENT

## < REMOVAL AND INSTALLATION >



JSKIA0017GB

Unit: mm (in)

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
E - A	1603 (63.11)*		E - D	284 (11.18)*		F - H	795 (31.30)*		f - k	1484 (58.43)	
E - B	1205 (47.44)*		E - F	710 (27.95)*		F - J	1358 (53.46)*		F - M	1750 (68.90)*	
E - C	688 (27.09)*		F - G	606 (23.86)*		F - K	1478 (58.19)				

Unit: mm (in)

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
A - a	832 (32.76)		D - d	856 (33.70)		H - h	945 (37.20)		M - m	1070 (42.13)	
B - b	830 (32.68)		E - e	876 (34.49)		O - o	977 (38.46)				
N - n	846 (33.31)		F - f	875 (34.45)		J - j	903 (35.55)				
C - c	784 (30.87)		G - g	1208 (47.56)		K - k	1050 (41.34)				

Unit: mm (in)

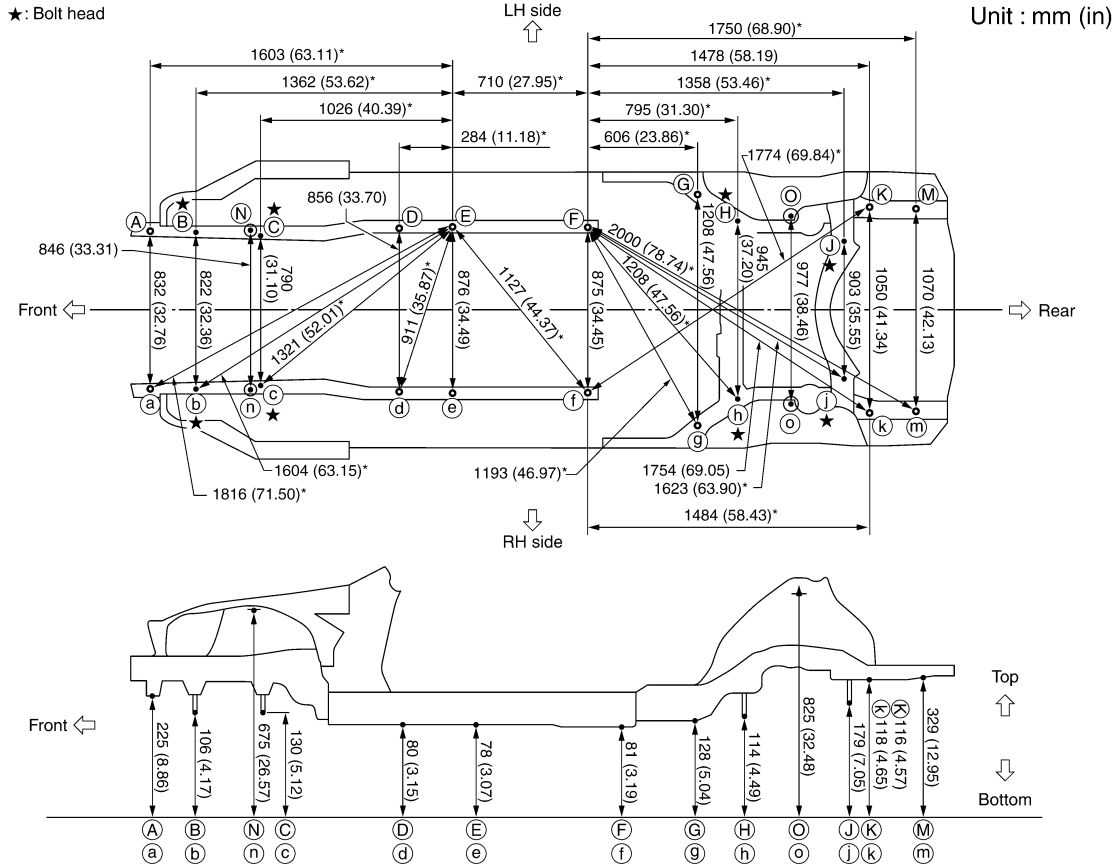
Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
E - a	1816 (71.50)*		E - d	911 (35.87)*		F - h	1208 (47.56)*		f - K	1774 (69.84)	
E - b	1477 (58.15)*		E - f	1127 (44.37)*		F - j	1623 (63.90)*		F - m	2000 (78.74)*	
E - c	1077 (42.40)*		F - g	1193 (46.97)*		F - k	1754 (69.05)				

### Measurement (AWD)

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

# BODY ALIGNMENT

## < REMOVAL AND INSTALLATION >



Unit: mm (in)

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
E - A	1603 (63.11)*		E - D	284 (11.18)*		F - H	795 (31.30)*		f - k	1484 (58.43)	
E - B	1362 (53.62)*		E - F	710 (27.95)*		F - J	1358 (53.46)*		F - M	1750 (68.90)*	
E - C	1026 (40.39)*		F - G	606 (23.86)*		F - K	1478 (58.19)				

Unit: mm (in)

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
A - a	832 (32.76)		D - d	856 (33.70)		H - h	945 (37.20)		M - m	1070 (42.13)	
B - b	822 (32.36)		E - e	876 (34.49)		O - o	977 (38.46)				
C - c	790 (31.10)		F - f	875 (34.45)		J - j	903 (35.55)				
N - n	846 (33.31)		G - g	1208 (47.56)		K - k	1050 (41.34)				

Unit: mm (in)

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
E - a	1816 (71.50)*		E - d	911 (35.87)*		F - h	1208 (47.56)*		f - K	1774 (69.84)	
E - b	1604 (63.15)*		E - f	1127 (44.37)*		F - j	1623 (63.90)*		F - m	2000 (78.74)*	
E - c	1321 (52.01)*		F - g	1193 (46.97)*		F - k	1754 (69.05)				

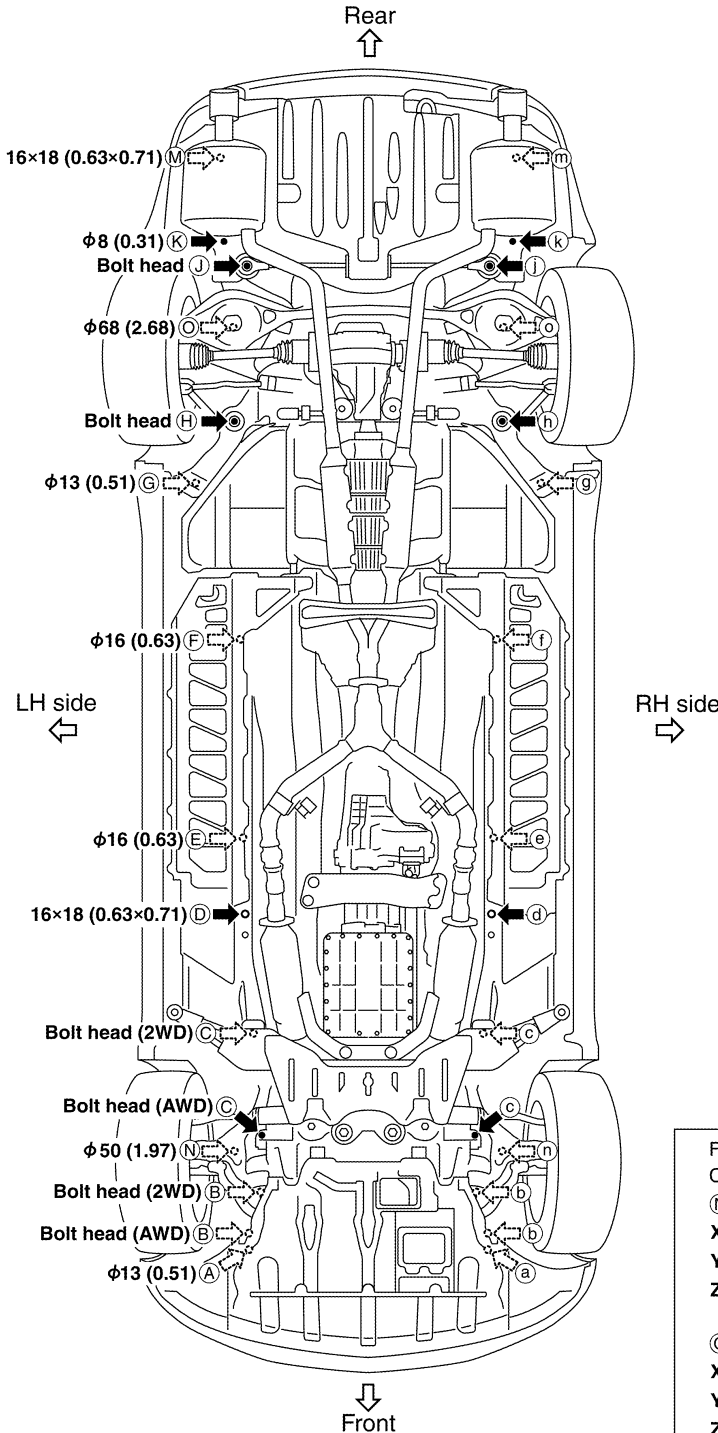
# BODY ALIGNMENT

< REMOVAL AND INSTALLATION >

## Measurement Points

Unit : mm (in)

As viewed from underside.



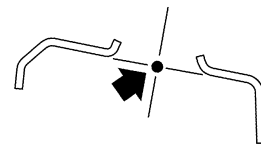
Coordinates:

(A), a	(G), g
X:416	X:604
Y:-496	Y:2391
Z:225	Z:128
(B), b AWD	(H), h
X:411	X:473
Y:-261	Y:2604
Z:106	Z:114
(B), b 2WD	(J), j
X:415	X:452
Y:-104	Y:3164
Z:134	Z:179
(C), c AWD	(K)
X:395	X:550
Y:76	Y:3265
Z:130	Z:116
(C), c 2WD	(k)
X:392	X:-500
Y:414	Y:3273
Z:65	Z:118
(D), d	(M), m
X:428	X:535
Y:817	Y:3540
Z:80	Z:329
(E), e	
X:438	
Y:1100	
Z:78	
(F), f	
X:438	
Y:1810	
Z:81	

Front and rear strut tower centers

Coordinates:

(N), n	
X:423	
Y:38	
Z:675	
(O), o	
X:488	
Y:2892	Front: (N), n $\phi$ 50 (1.97)
Z:825	Rear: (O), o $\phi$ 68 (2.68)



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## Passenger Compartment

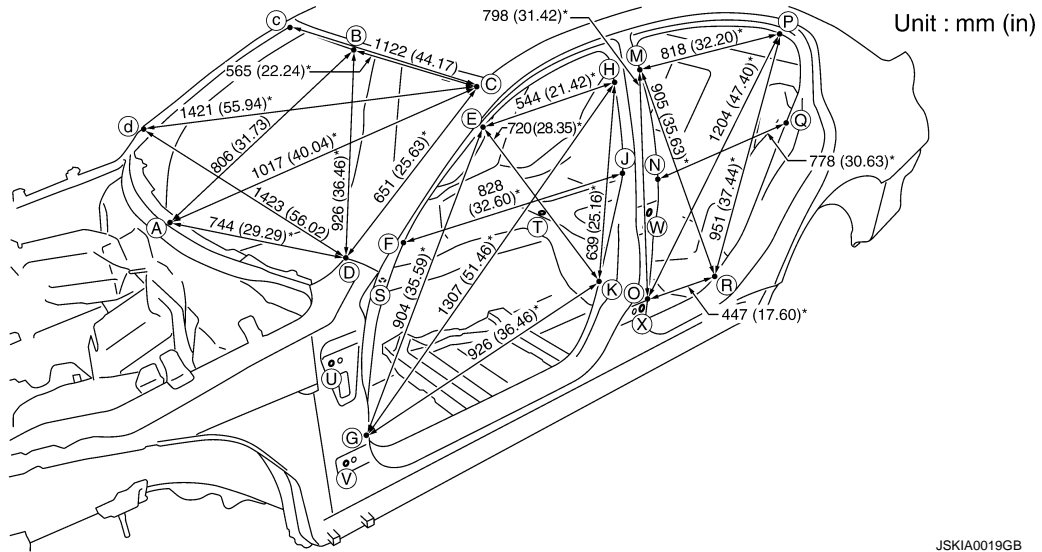
### Measurement

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



# BODY ALIGNMENT

< REMOVAL AND INSTALLATION >



«Front window opening»

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
A - B	806 (31.73)		B - c	565 (22.24)*		C - D	651 (25.63)*	
A - C	1017 (40.04)*		B - D	926 (36.46)*		C - d	1421 (55.94)*	
A - D	744 (29.29)*		C - c	1122 (44.17)		D - d	1423 (56.02)	

«Front door opening»

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
E - G	904 (35.59)*		E - K	720 (28.35)*		G - H	1307 (51.46)*		H - K	639 (25.16)*	
E - H	544 (21.42)*		F - J	828 (32.60)*		G - K	926 (36.46)*				

«Rear door opening»

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
M - O	798 (31.42)*		M - R	905 (35.63)*		O - P	1204 (47.40)*		P - R	951 (37.44)*	
M - P	818 (32.20)*		N - Q	778 (30.63)*		O - R	447 (17.60)*				

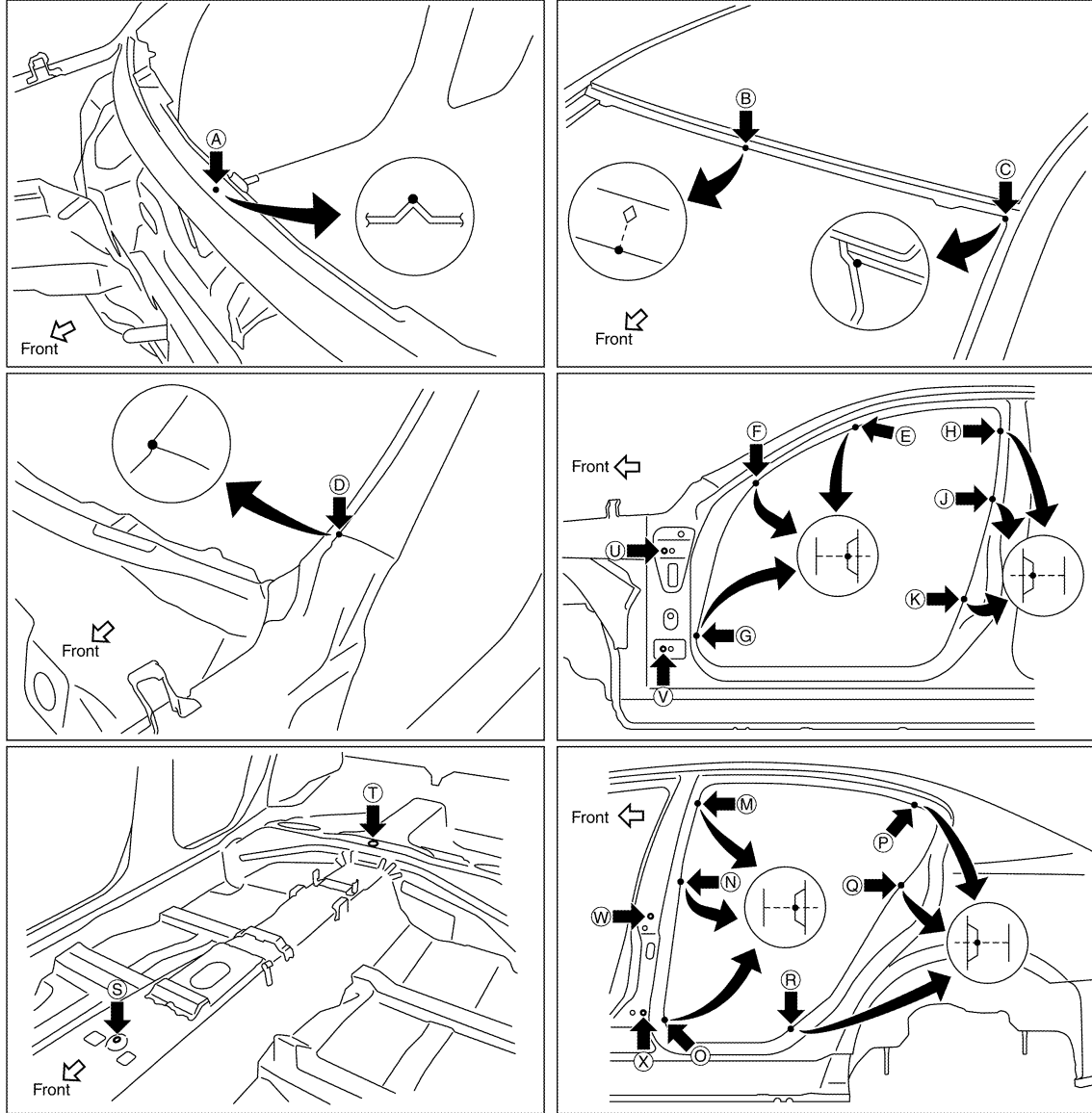
«The others»

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
E - e	1249 (49.17)		J - j	1446 (56.93)		P - r	1627 (64.05)*		T - O	766 (30.16)*	
E - g	1622 (63.86)*		K - k	1456 (57.32)		Q - q	1398 (55.04)		T - P	1167 (45.94)*	
E - h	1359 (53.50)*		M - m	1216 (47.87)		R - r	1451 (57.13)		T - Q	1020 (40.16)*	
E - k	1529 (60.20)*		M - p	1459 (57.44)*		S - E	1006 (39.61)*		T - R	756 (29.76)*	
F - f	1414 (55.67)*		M - r	1608 (63.31)*		S - F	863 (33.98)*		U - W	1181 (46.50)*	
F - j	1652 (65.04)*		N - n	1444 (56.85)		S - G	751 (29.57)*		U - X	1176 (46.30)*	
G - g	1452 (57.17)		N - q	1620 (63.78)*		S - H	1299 (51.14)*		V - W	1239 (48.78)*	
G - h	1874 (73.78)*		O - o	1450 (57.09)		S - J	1187 (46.73)*		V - X	1147 (45.16)*	
G - k	1724 (67.87)*		O - p	1786 (70.31)*		S - K	1033 (40.67)*				
H - h	1242 (48.90)		O - r	1518 (59.76)*		T - M	981 (38.62)*				
H - k	1489 (58.62)*		P - p	1200 (47.24)		T - N	874 (34.41)*				

Measurement Points

# BODY ALIGNMENT

## < REMOVAL AND INSTALLATION >



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Unit: mm (in)

Point	Material	Point	Material
A	Upper dash crossmember flange end of center positioning mark	H, h, J, j, K, k, M, m, N, n, O, o	Center pillar indent
B	Roof flange end of center positioning mark	P, p, Q, q, R, r	Rear fender indent
C, c	Front pillar joggle	S	Trans control reinforcement hole center of center positioning mark 14×12 (0.55×0.47)
D, d	Body side outer corner	T	Rear seat cross member reinforcement hole center of center positioning mark $\phi 6$ (0.24)
E, e, F, f, G, g	Front pillar indent	U, u, V, v, W, w, X, x	Door hinge installing hole center U, u, X, x: $\phi 12$ (0.47) V, v: $\phi 14$ (0.55) W, w: $\phi 9$ (0.35)

### Rear Body

INFOID:000000001835443

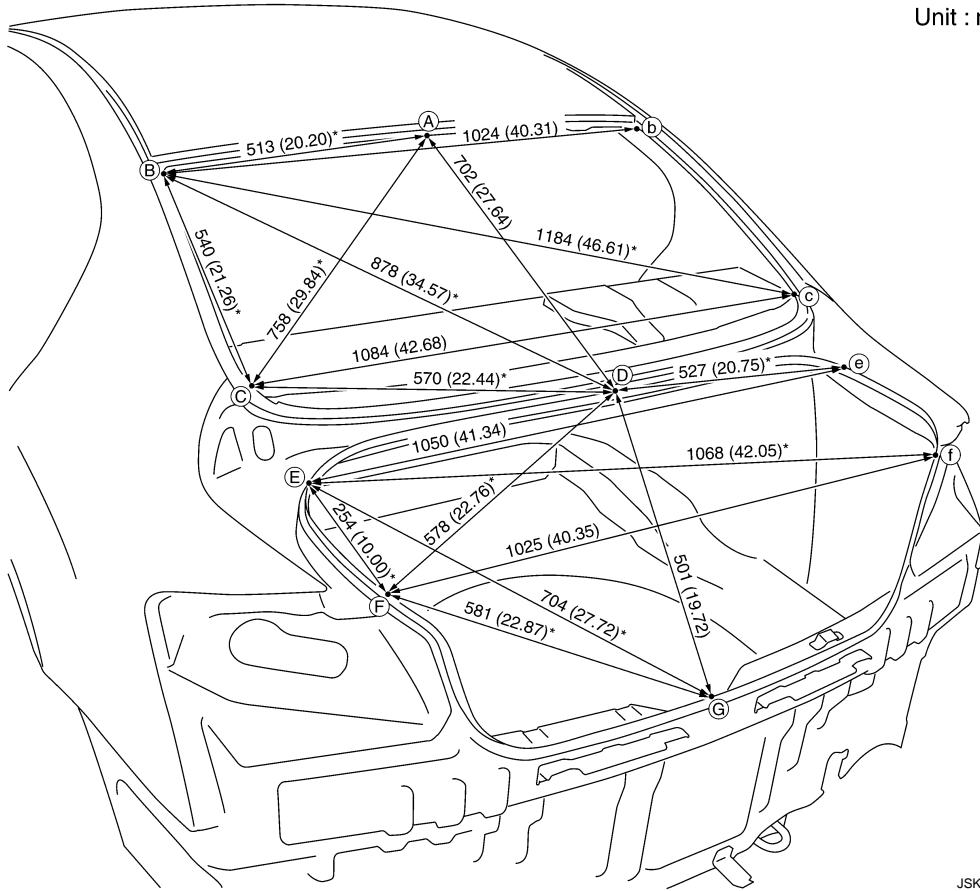
### Measurement

# BODY ALIGNMENT

## < REMOVAL AND INSTALLATION >

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

Unit : mm (in)



JSKIA0021GB

«Rear window opening»

Unit: mm (in)

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
A - B	513 (20.20)*		B - b	1024 (40.31)		B - D	878 (34.57)*	
A - C	758 (29.84)*		B - C	540 (21.26)*		C - c	1084 (42.68)	
A - D	702 (27.64)		B - c	1184 (46.61)*		C - D	570 (22.44)*	

«Trunk room opening»

Unit: mm (in)

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
D - e	527 (20.75)*		E - e	1050 (41.34)		E - G	704 (27.72)*	
D - F	578 (22.76)*		E - F	254 (10.00)*		F - f	1025 (40.35)	
D - G	501 (19.72)		E - f	1068 (42.05)*		F - G	581 (22.87)*	

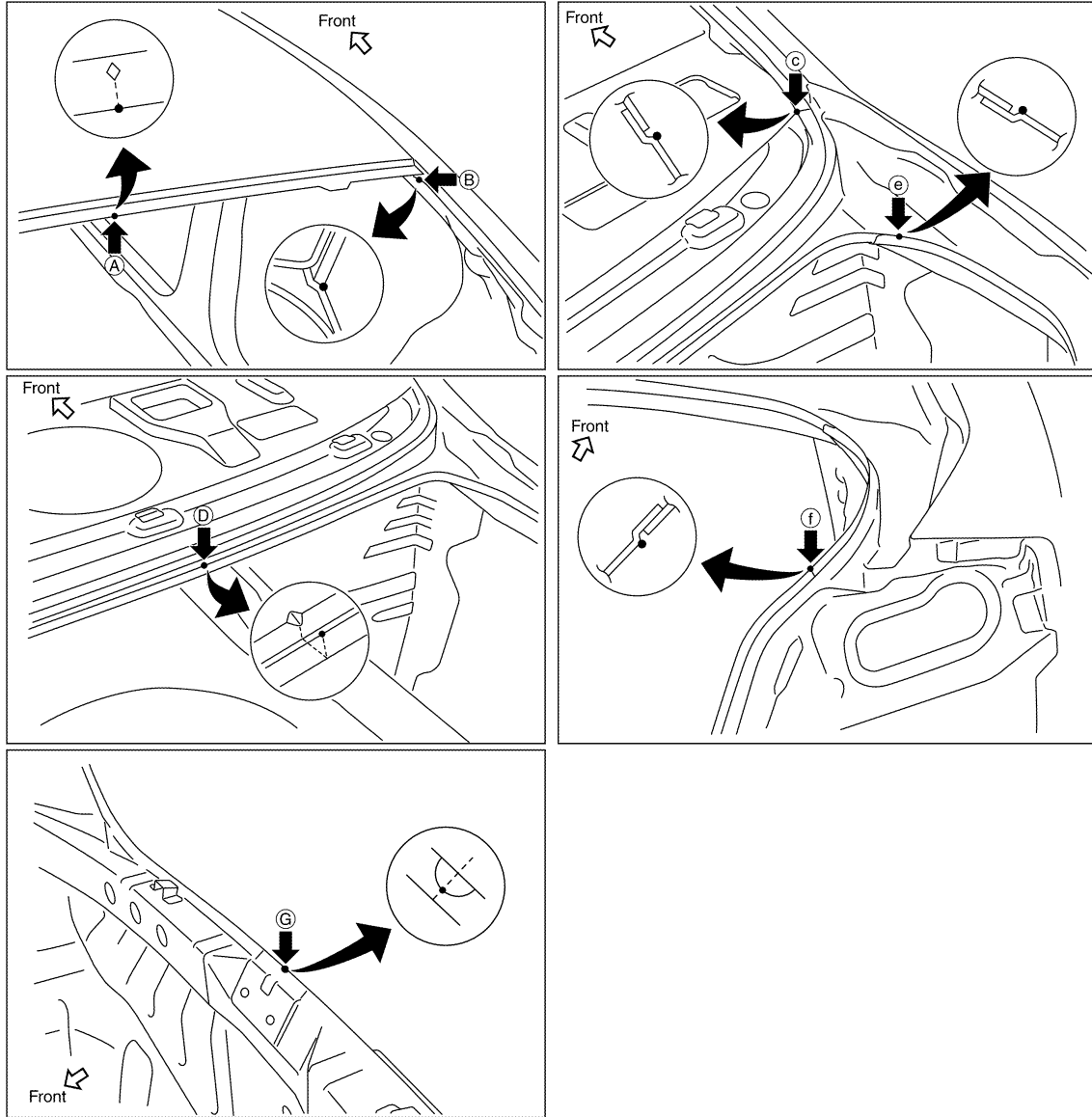
### Measurement Points

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BRM

# BODY ALIGNMENT

## < REMOVAL AND INSTALLATION >



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Point	Material	Point	Material
A	Roof flange end of center positioning mark	E, e	Rear fender corner extension joggle
B, b	Rear fender joggle	F, f	Rear combination lamp base joggle
C, c	Rear fender extension joggle	G	Rear panel indent of center positioning mark
D	Rear waist flange end of center positioning mark		

# REPAIRING HIGH STRENGTH STEEL

< REMOVAL AND INSTALLATION >

## REPAIRING HIGH STRENGTH STEEL

### High Strength Steel (HSS)

INFOID:000000001835444

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

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

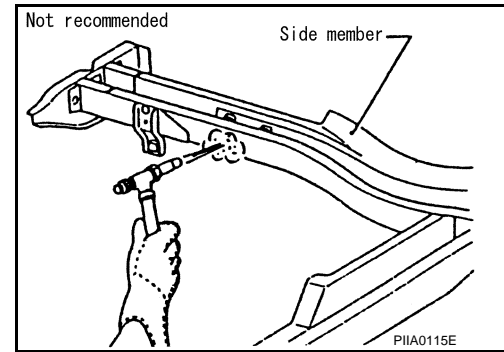
Tensile strength	Major applicable parts
370 - 590 MPa	<ul style="list-style-type: none"> <li>• Front &amp; rear side member assembly</li> <li>• Front side member closing plate assembly</li> <li>• Hoodledge assembly</li> <li>• Lower dash assembly</li> <li>• Rear seat crossmember</li> <li>• Other reinforcements</li> </ul>
780 - 1350 MPa	<ul style="list-style-type: none"> <li>• Center pillar reinforcement (Component part)</li> <li>• Outer side roof rail reinforcement (Component part)</li> </ul>

Read the following precautions when repairing HSS:

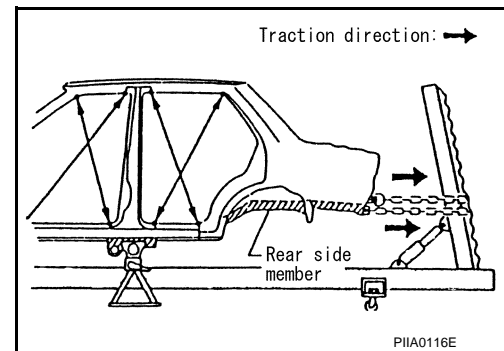
1. Additional points to consider

- The repair of reinforcements (such as side members) by heating is not recommended, because it may weaken the component. When heating is unavoidable, never heat HSS parts above 550°C (1,022°F).

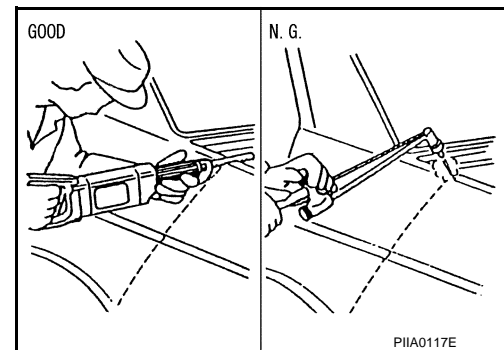
Verify heating temperature with a thermometer.  
(Crayon-type and other similar type thermometer are appropriate.)



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



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

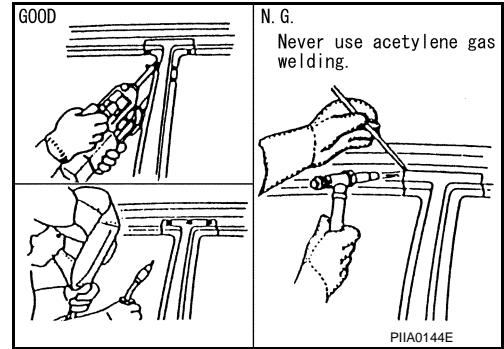


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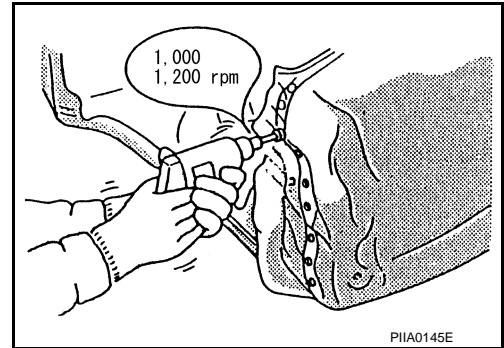
# REPAIRING HIGH STRENGTH STEEL

## < REMOVAL AND INSTALLATION >

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



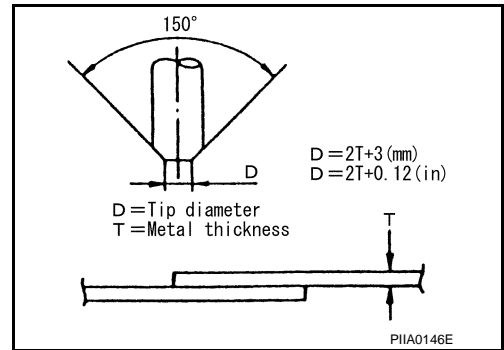
- Spot welding on HSS panels is harder than that of an ordinary steel panel. Therefore, when cutting spot welds on a HSS panel, use a low speed high torque drill (1,000 to 1,200 rpm) to increase drill bit durability and facilitate the operation.



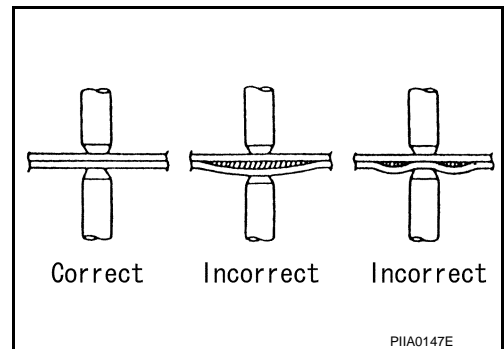
### 2. Precautions in spot welding HSS

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.



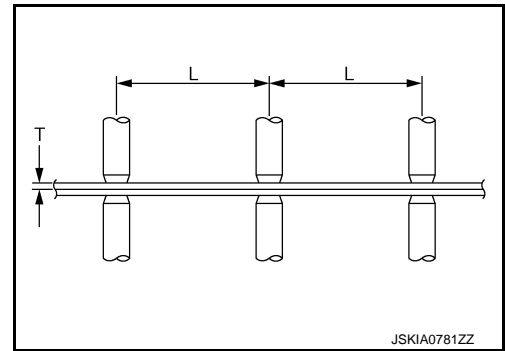
# REPAIRING HIGH STRENGTH STEEL

## < REMOVAL AND INSTALLATION >

- Follow the specifications for the proper welding pitch.

Unit: mm (in)

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



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# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

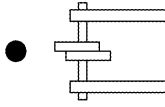
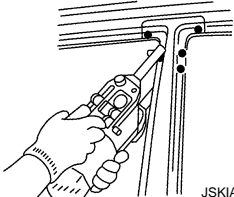
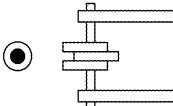
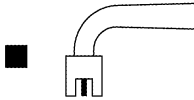



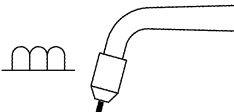
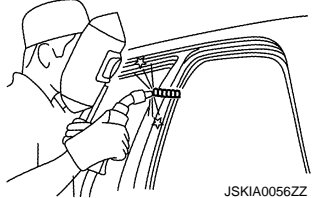
## REPLACEMENT OPERATIONS

### Description

INFOID:000000001835445

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

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

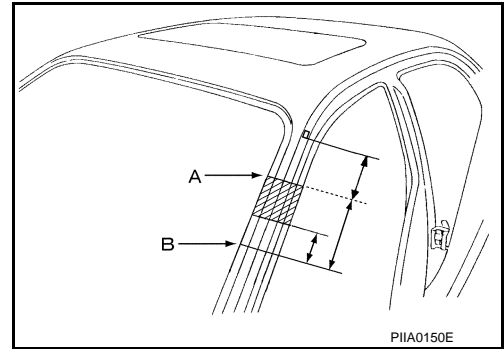
Symbol marks	Description	
 <p data-bbox="402 844 490 861">JSKIA0049ZZ</p>	2-spot welds	 <p data-bbox="1291 970 1377 987">JSKIA0053ZZ</p>
 <p data-bbox="402 1096 490 1113">JSKIA0050ZZ</p>	3-spot welds	
 <p data-bbox="402 1474 490 1491">JSKIA0051ZZ</p>	MIG plug weld	 <p data-bbox="1291 1348 1377 1365">JSKIA0054ZZ</p> <p data-bbox="1010 1381 1318 1411">For 3 panels plug weld method</p> <div style="display: flex; flex-direction: column; align-items: center;"> <div data-bbox="1144 1438 1302 1480"> <p data-bbox="1144 1453 1166 1474">■ A</p>  </div> <div data-bbox="1144 1533 1302 1575"> <p data-bbox="1144 1547 1166 1568">■ B</p>  </div> </div> <p data-bbox="1291 1600 1377 1617">JSKIA0055ZZ</p>
 <p data-bbox="402 1852 490 1869">JSKIA0052ZZ</p>	MIG seam weld / Point weld	 <p data-bbox="1291 1852 1377 1869">JSKIA0056ZZ</p>



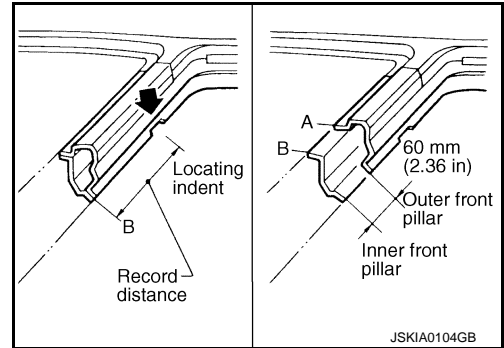
# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >

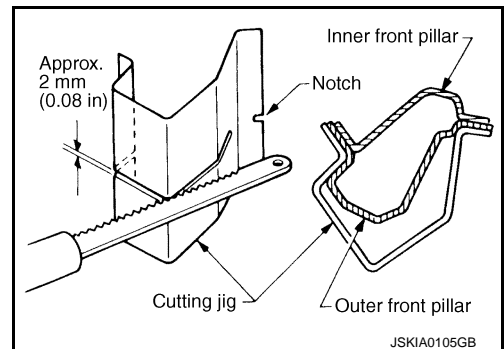
- Front pillar butt joint can be determined anywhere within shaded area as shown in the figure. The best location for the butt joint is at position A due to the construction of the vehicle. Refer to the front pillar section.



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

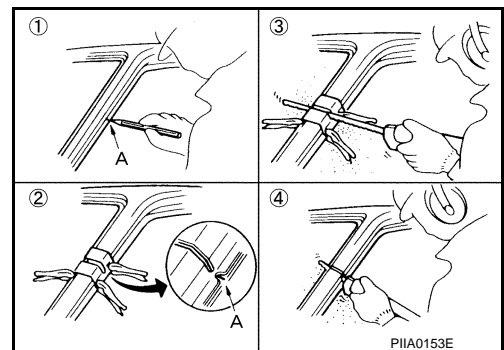


- Prepare a cutting jig to make outer pillar easier to cut. Also, this will permit service part to be accurately cut at joint position.



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

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



## REAR FENDER HEMMING PROCESS

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

### CAUTION:

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

Procedure of the hemming process

A  
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BRM

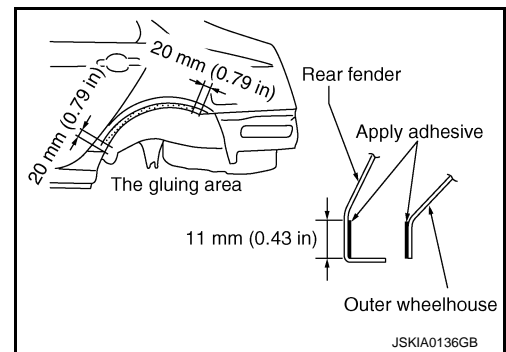
# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >

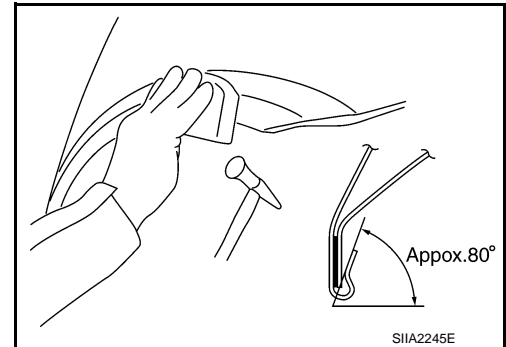
- Peel off old bonding material on the surface of outer wheelhouse and clean thoroughly.
- Peel off a primer coat in the specified area where new adhesive is to be applied on rear fender (the replacing part).
- Apply new adhesive to both specified areas of outer wheelhouse and rear fender.

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

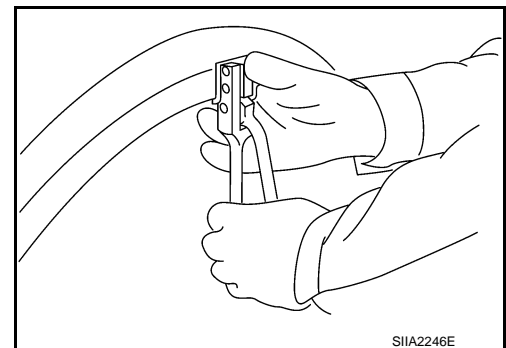
- Attach rear fender to the body of the car, and weld the required part except the hemming part.



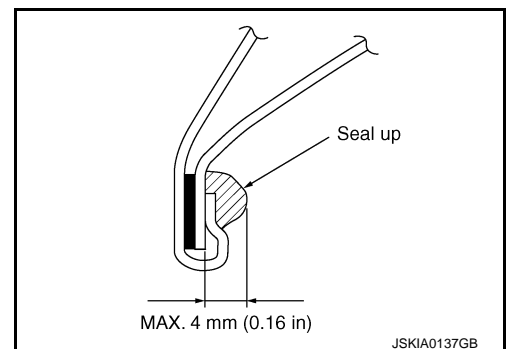
- Bend the welded part starting from the center of the wheel arch gradually with a hammer and a dolly. (Also hem the end of the flange.)
- Hemming with a hammer is conducted to an approximate angle of 80 degrees.



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



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



## FOAM REPAIR

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

### Urethane foam applications

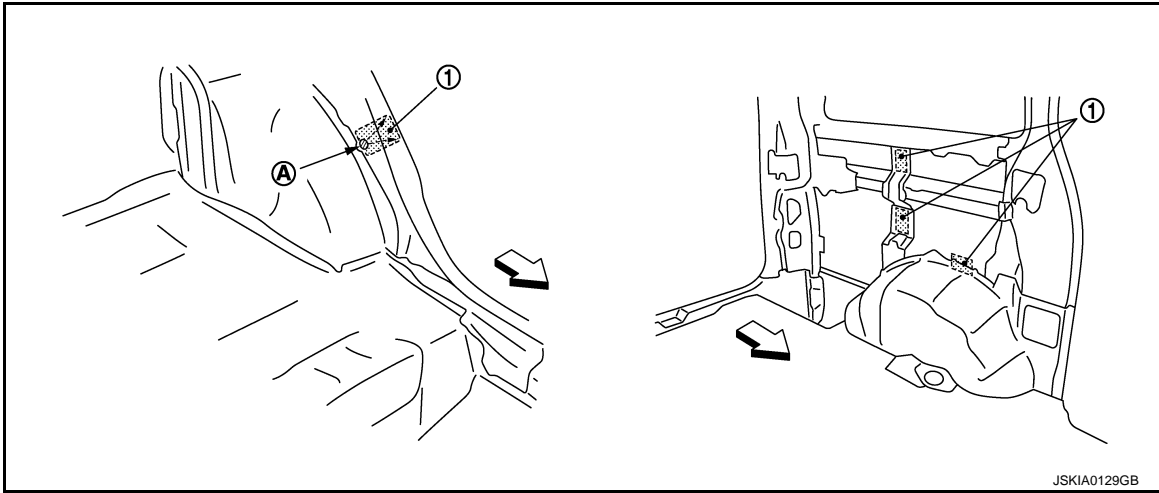
Use commercially available spray foam for sealant (foam material) repair of material used on vehicle. Read instructions on product for fill procedures.

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

# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >

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



- 1. Urethane foam
- A. Nozzle insert hole

⇐ : Vehicle front

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

- 1. Urethane foam
- A. Fill while avoiding flange area

⇐ : Vehicle front

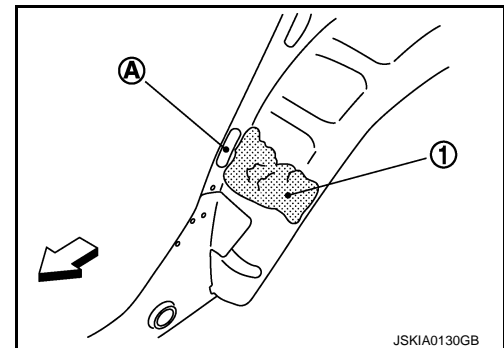
### NOTE:

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

- Install service part.

### NOTE:

Refer to label for information on working times.



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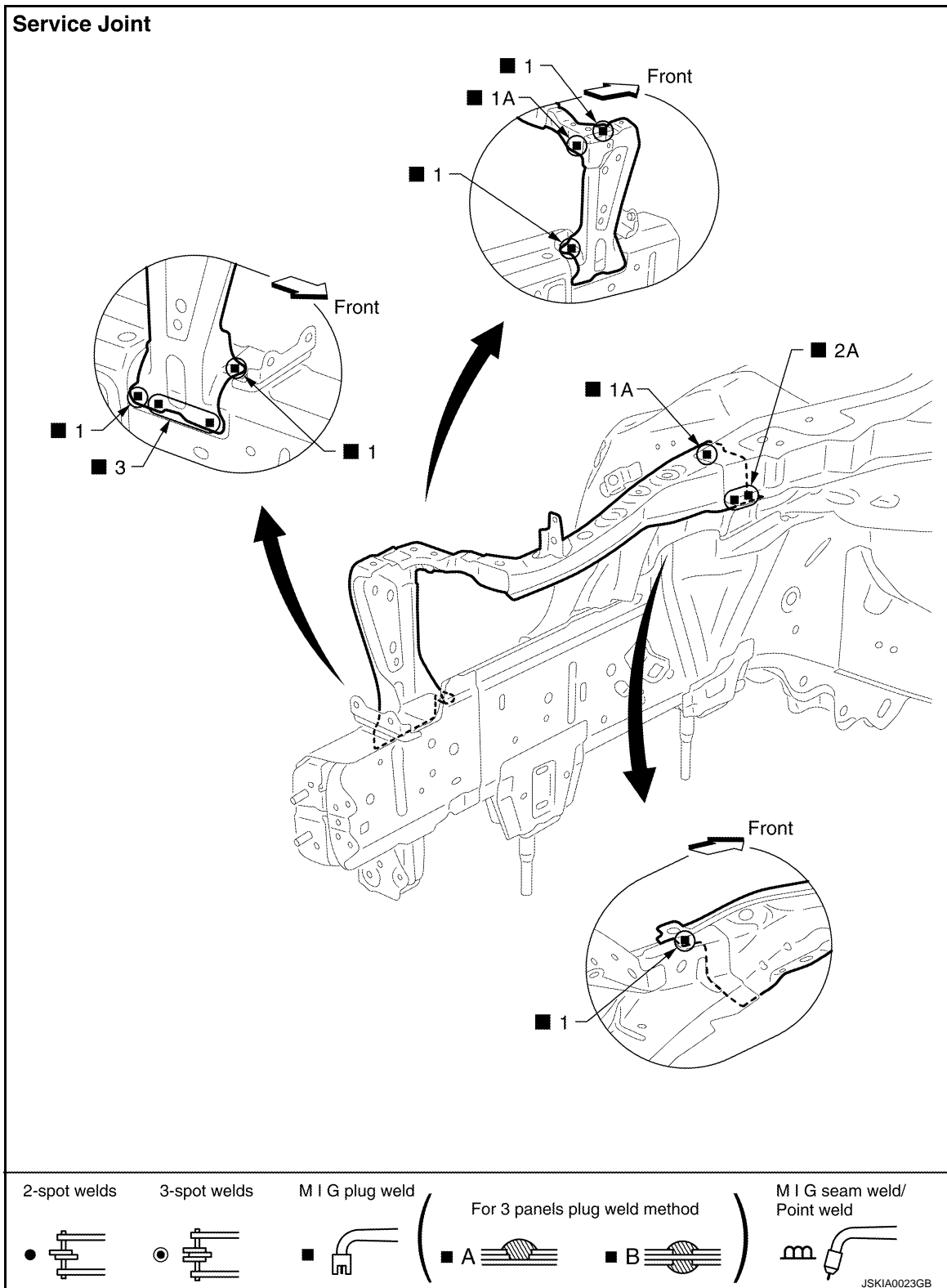
BRM

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

## Radiator Core Support

INFOID:000000001835446



Replacement parts

- Radiator core support assembly (LH)
- Front side member connector assembly (LH)

## Hoodledge

INFOID:000000001835447

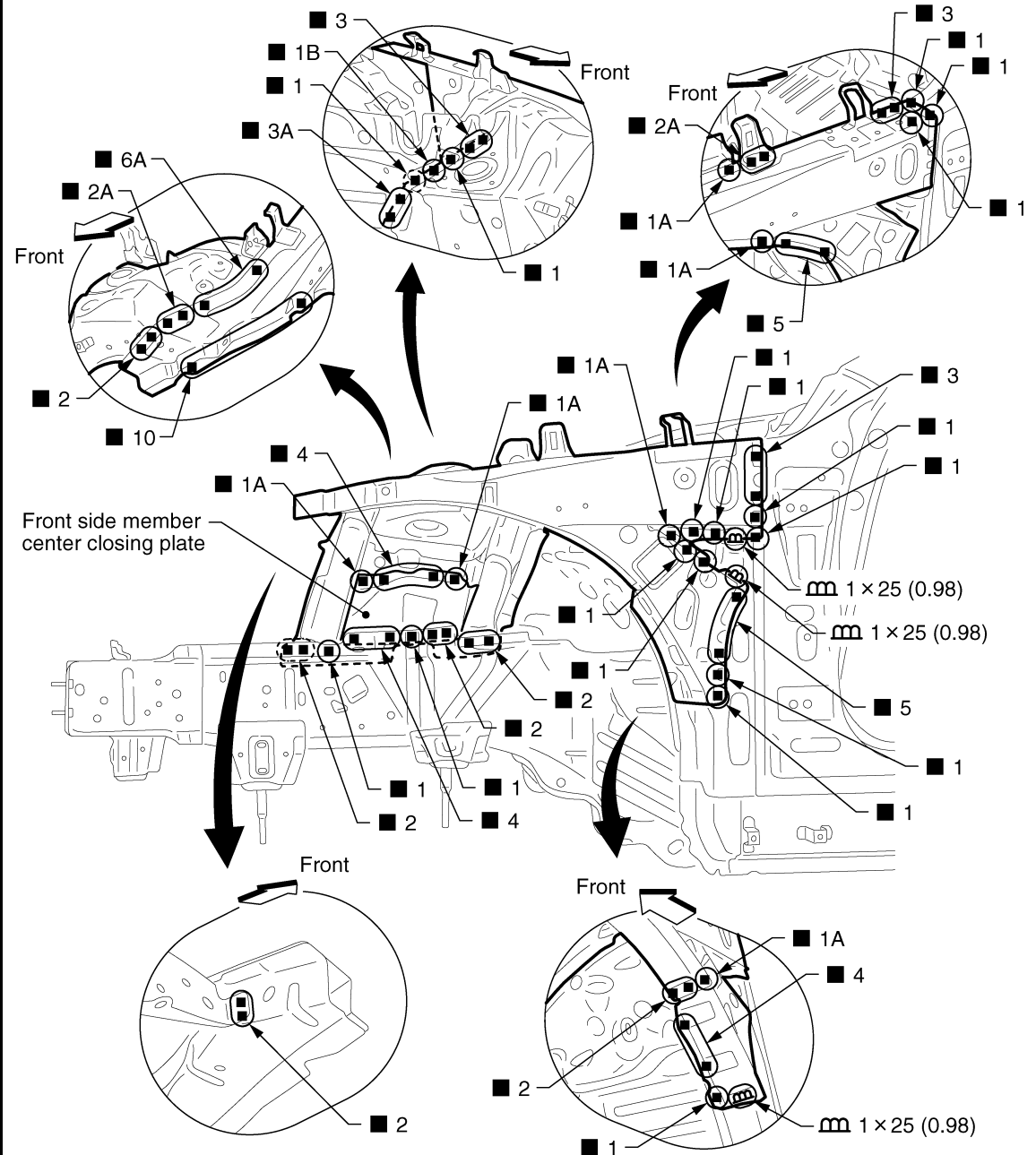
Work after radiator core support is removed.

# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >

### Service Joint

Remove the front side member center closing plate (reusable).



Unit: mm (in)

2-spot welds



3-spot welds



M I G plug weld



For 3 panels plug weld method



M I G seam weld/  
Point weld



JSKIA0115GB

#### Replacement parts

● Front strut housing (LH)

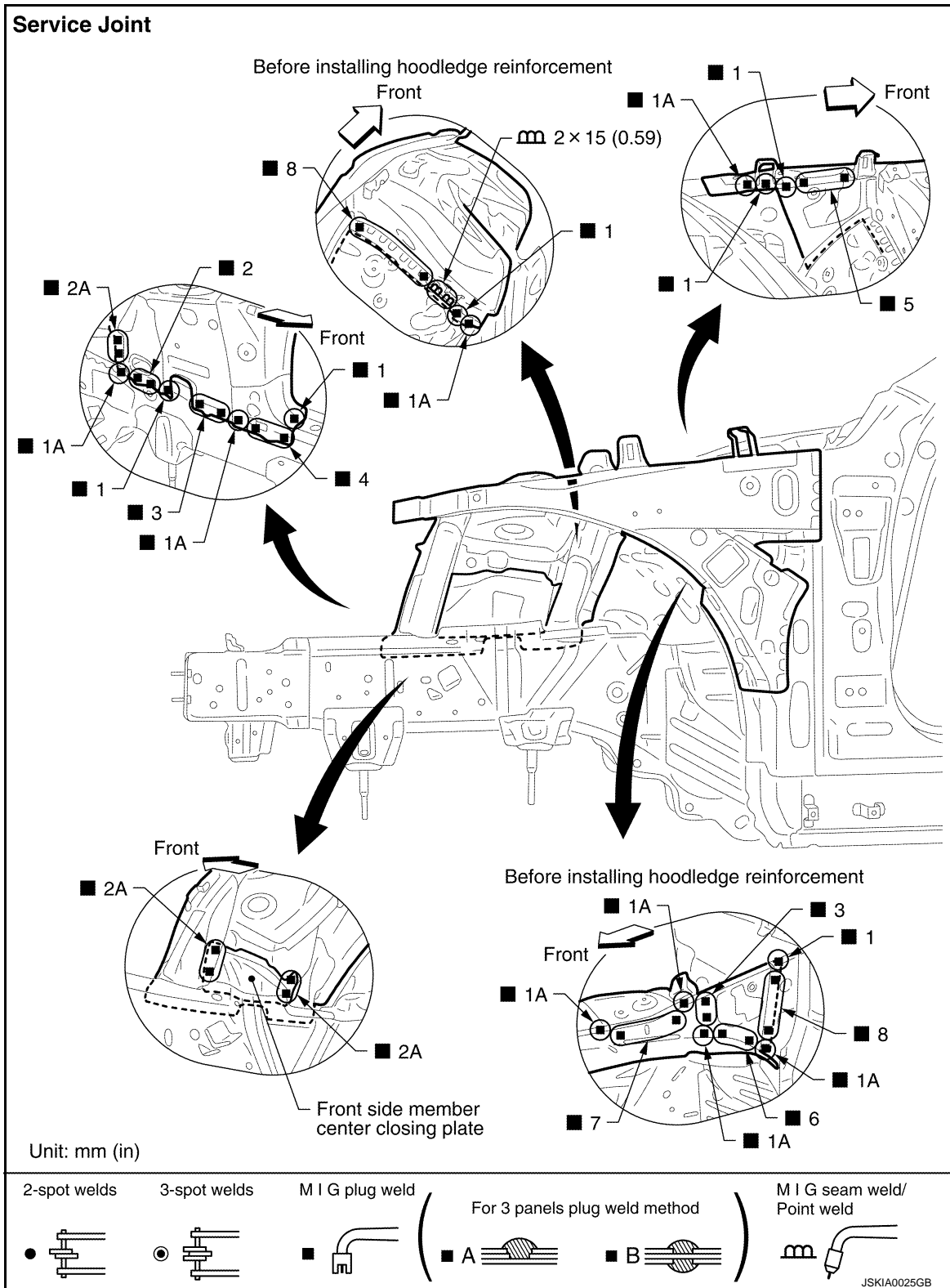
● Upper front hoodledge (LH)

● Hoodledge reinforcement (LH)

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# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



## Front Side Member (2WD)

INFOID:000000001835448

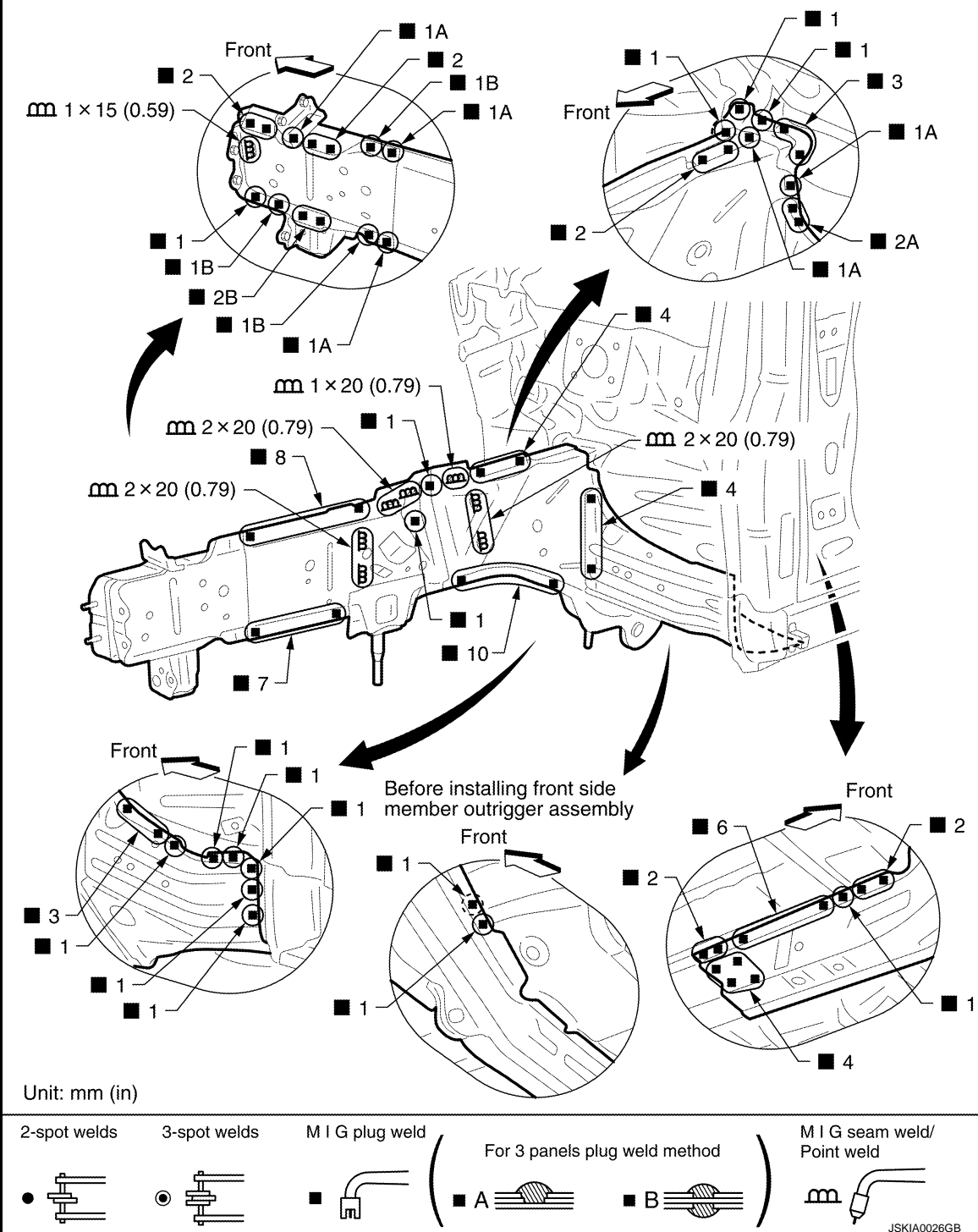
Work after radiator core support and hoodledge are removed.

# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >

### Service Joint

Assemble the hoodledge and check the fitting according to Body Alignment before replacing the front side member center closing plate.



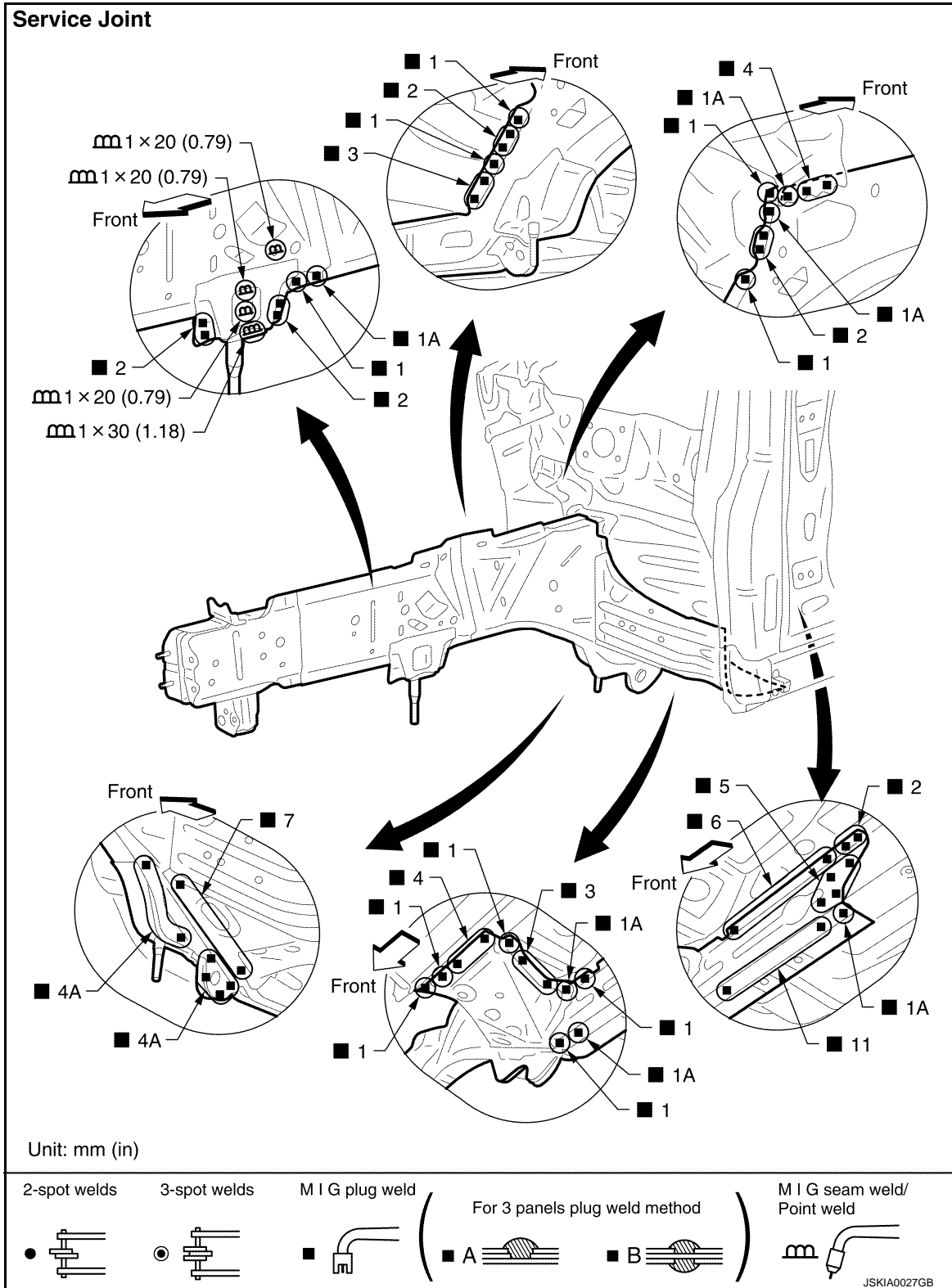
#### Replacement parts

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

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# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



## Front Side Member (AWD)

INFOID:000000001835449

Work after radiator core support and hoodledge are removed.

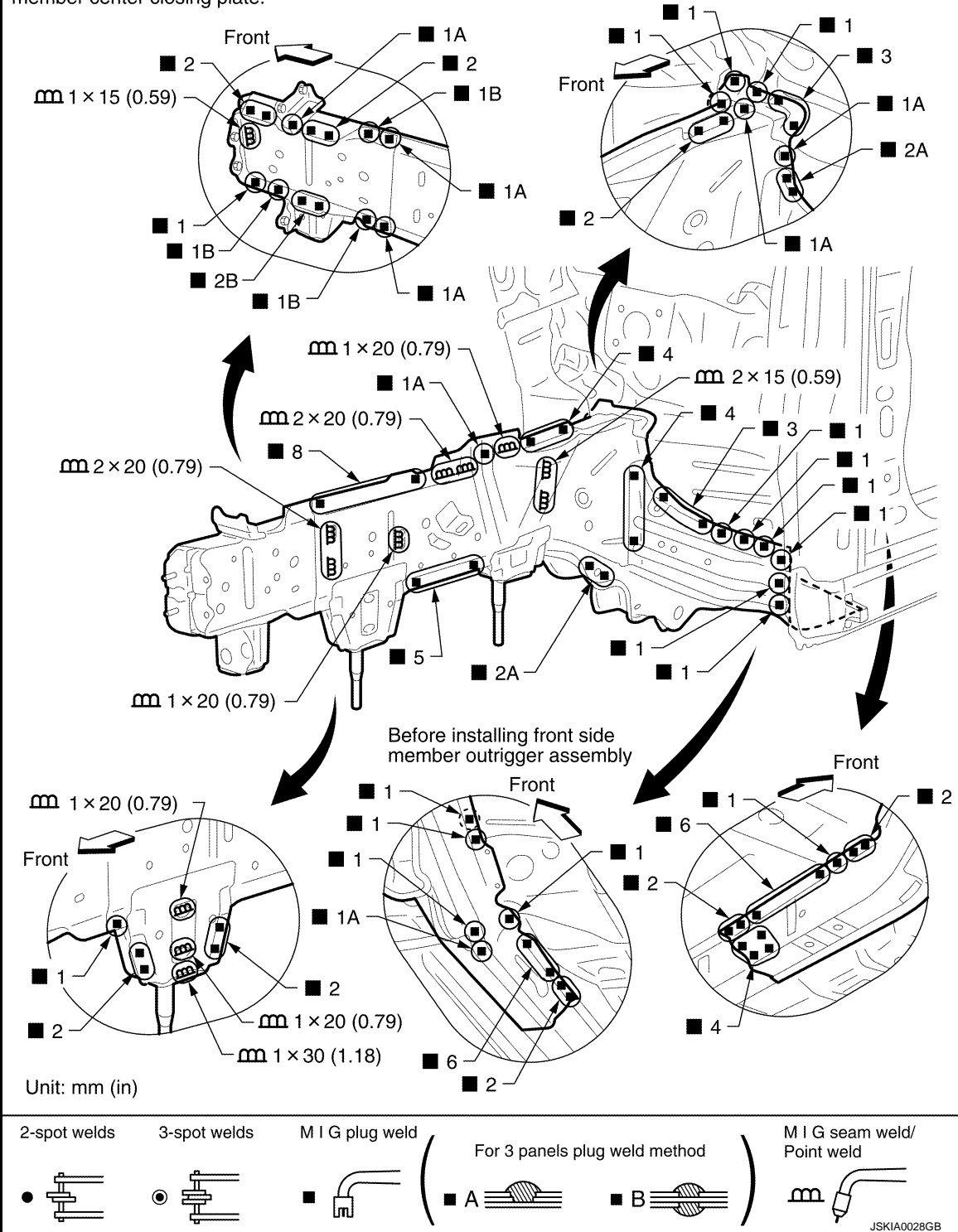


# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

## Service Joint

Assemble the hoodledge and check the fitting according to Body Alignment before replacing the front side member center closing plate.



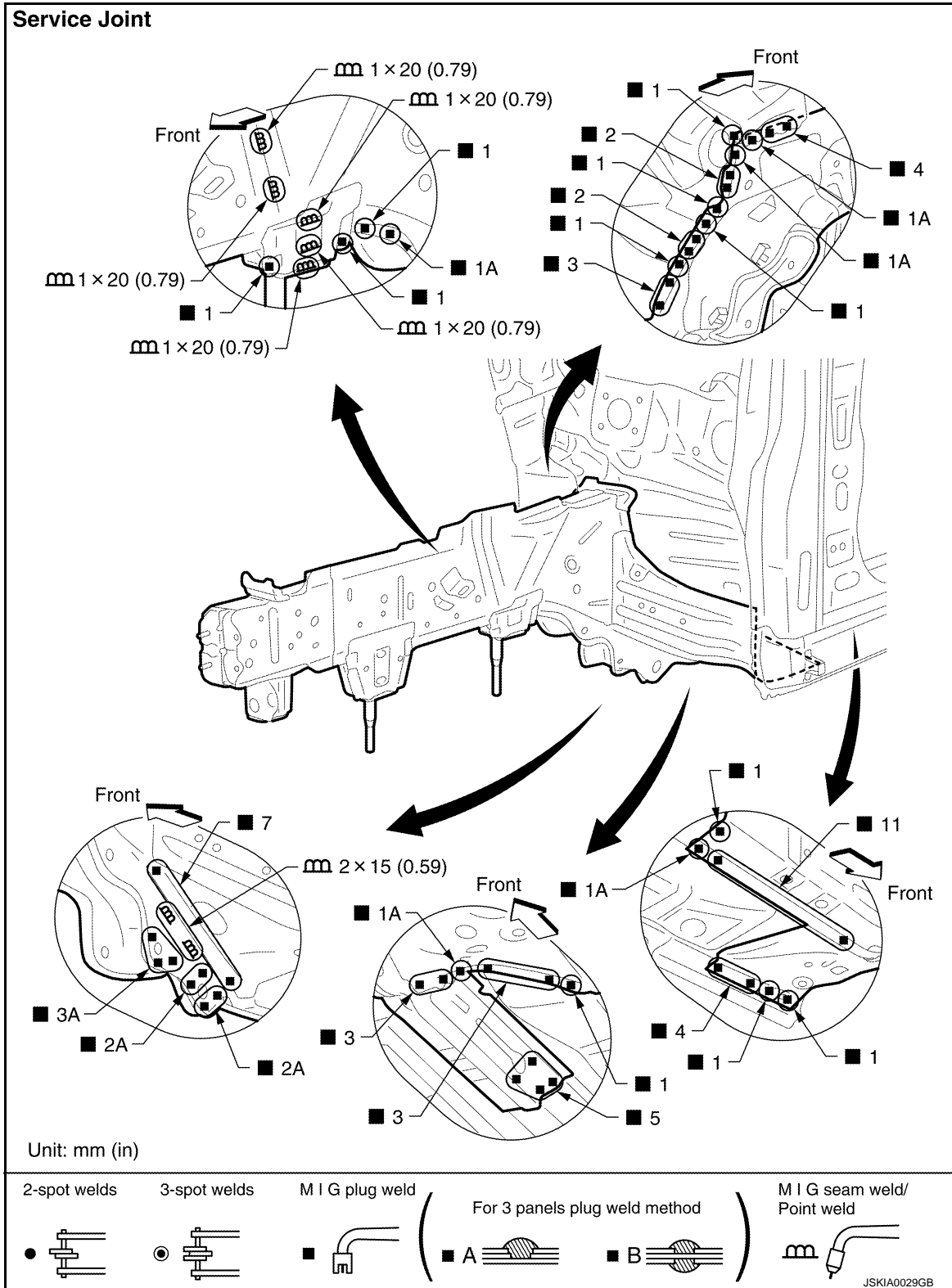
### Replacement parts

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

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# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



## Front Side Member (Partial Replacement)

INFOID:000000001835450

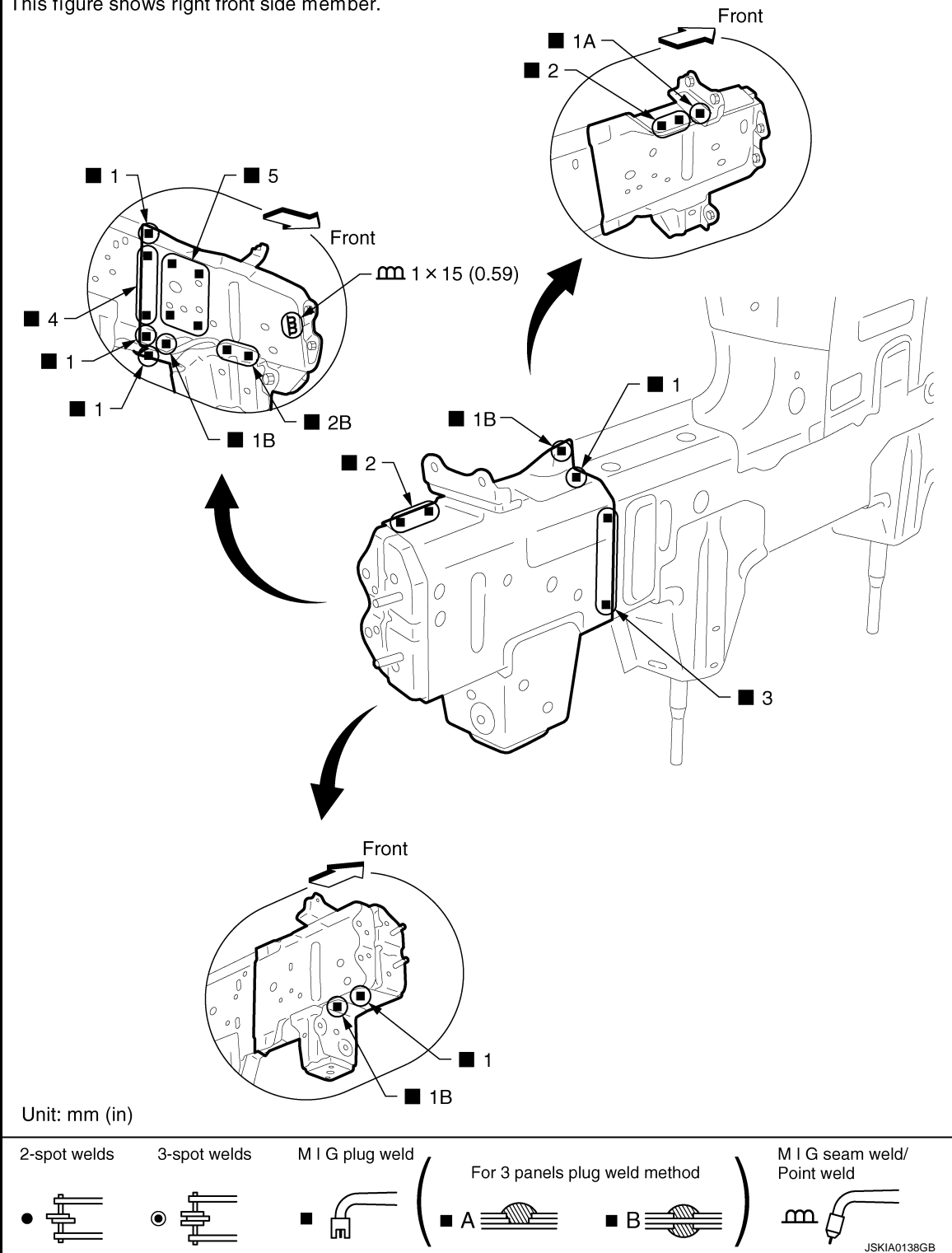
Work after radiator core support is removed.

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

## Service Joint

This figure shows right front side member.



### Replacement parts

- Front side member front extension (RH)
- Front side member front closing plate (RH)
- Front side rear closing reinforcement (RH)

## Front Pillar

INFOID:000000001835451

Work after hoodledge reinforcement and roof are removed.

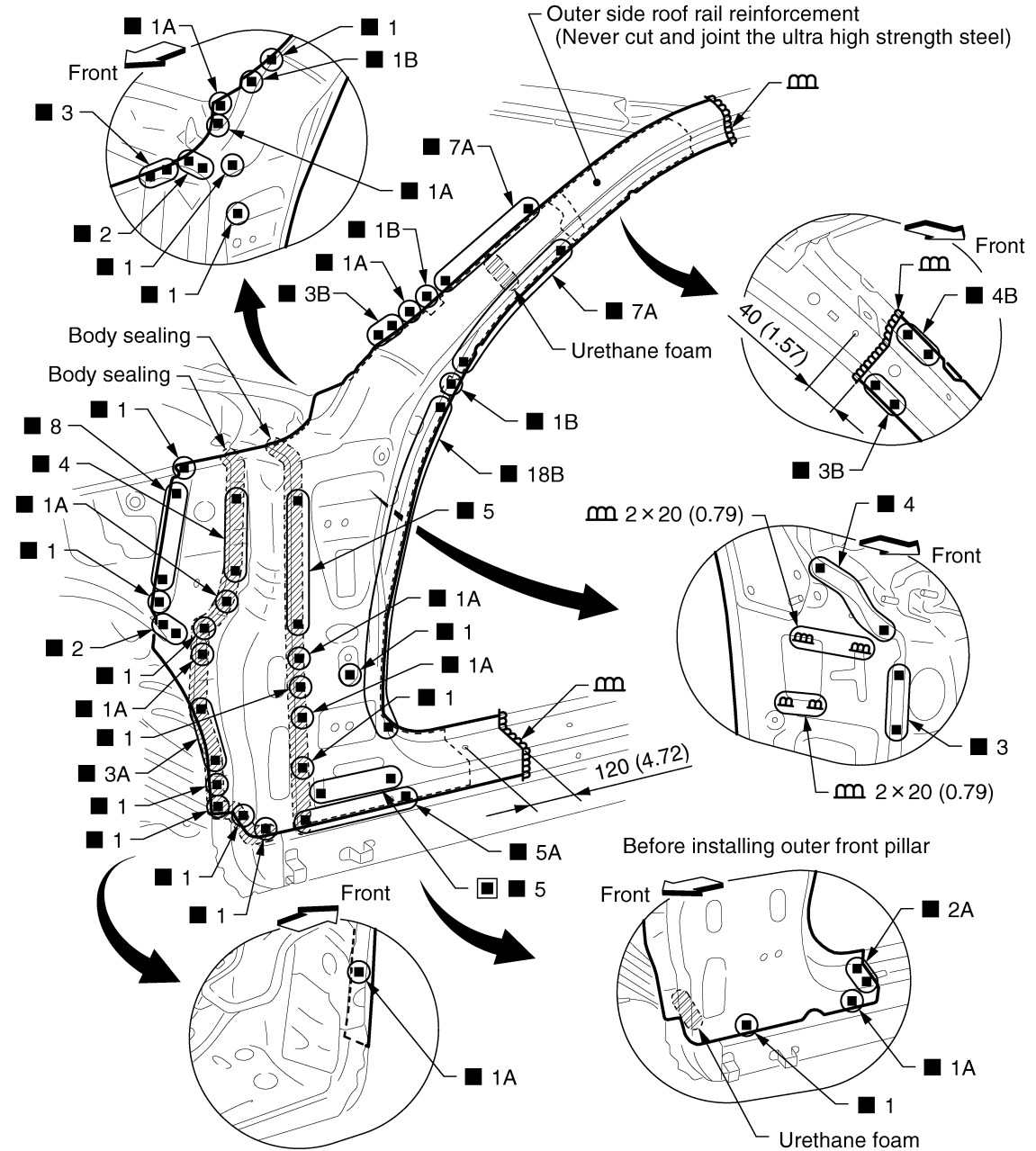
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# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

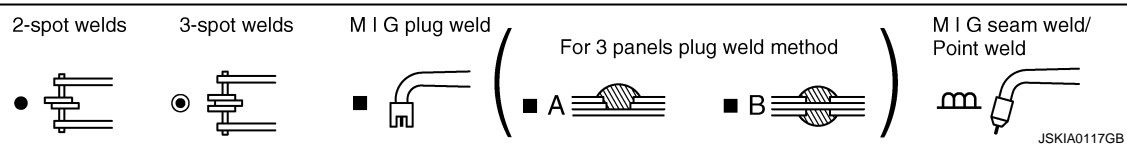
## Service Joint

Never cut and joint the outer side roof rail reinforcement (ultra high strength steel plate).



■ : Perform the plug welding instead of the laser welding.

Unit: mm (in)

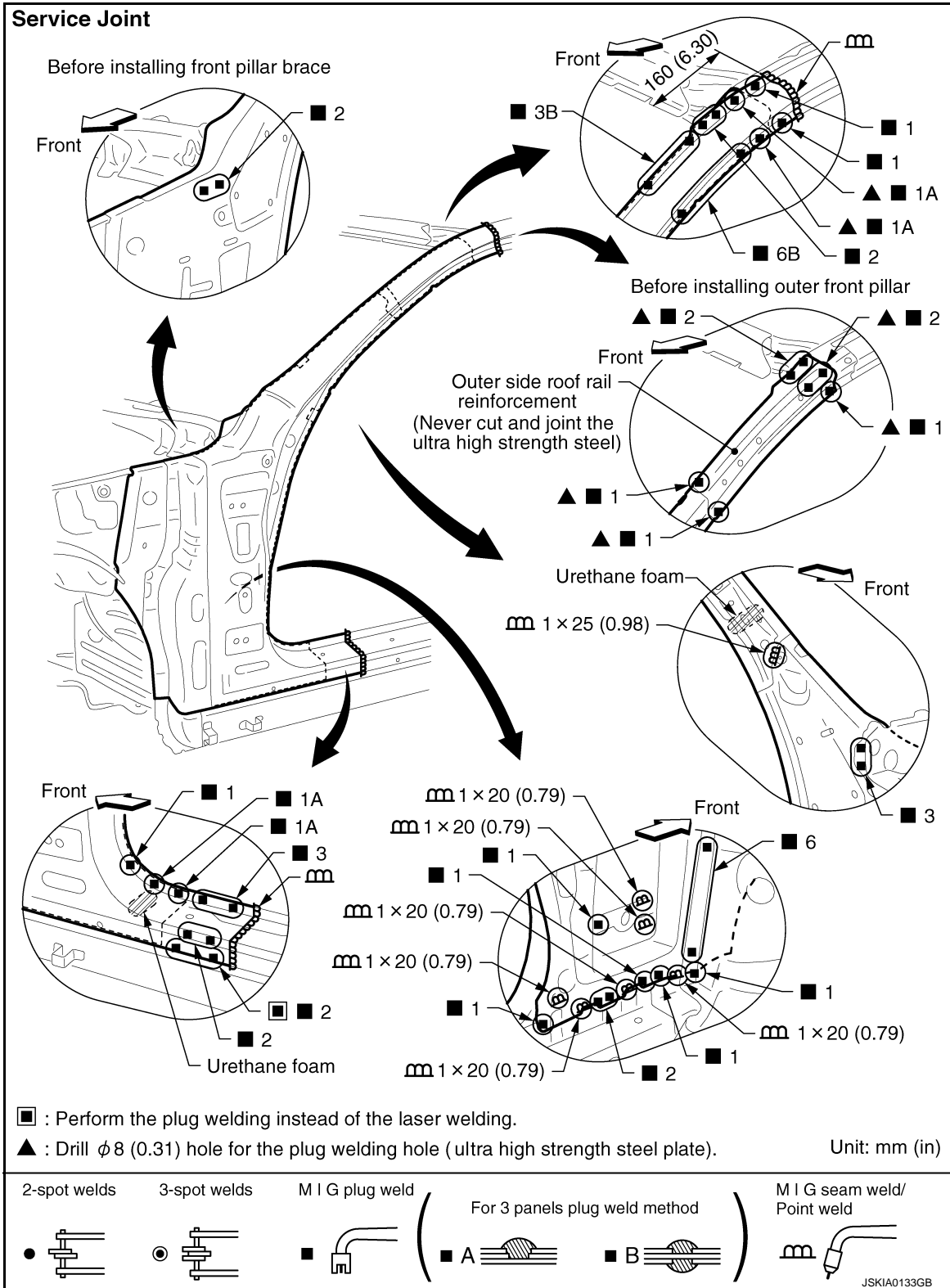


### Replacement parts

- Outer front side body (LH)
- Outer side roof rail reinforcement (LH)
- Front pillar brace (LH)
- Inner roof rail reinforcement (LH)
- Upper rear hoodledge (LH)

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



## Front Pillar (Partial Replacement)

Work after hoodledge reinforcement is removed.

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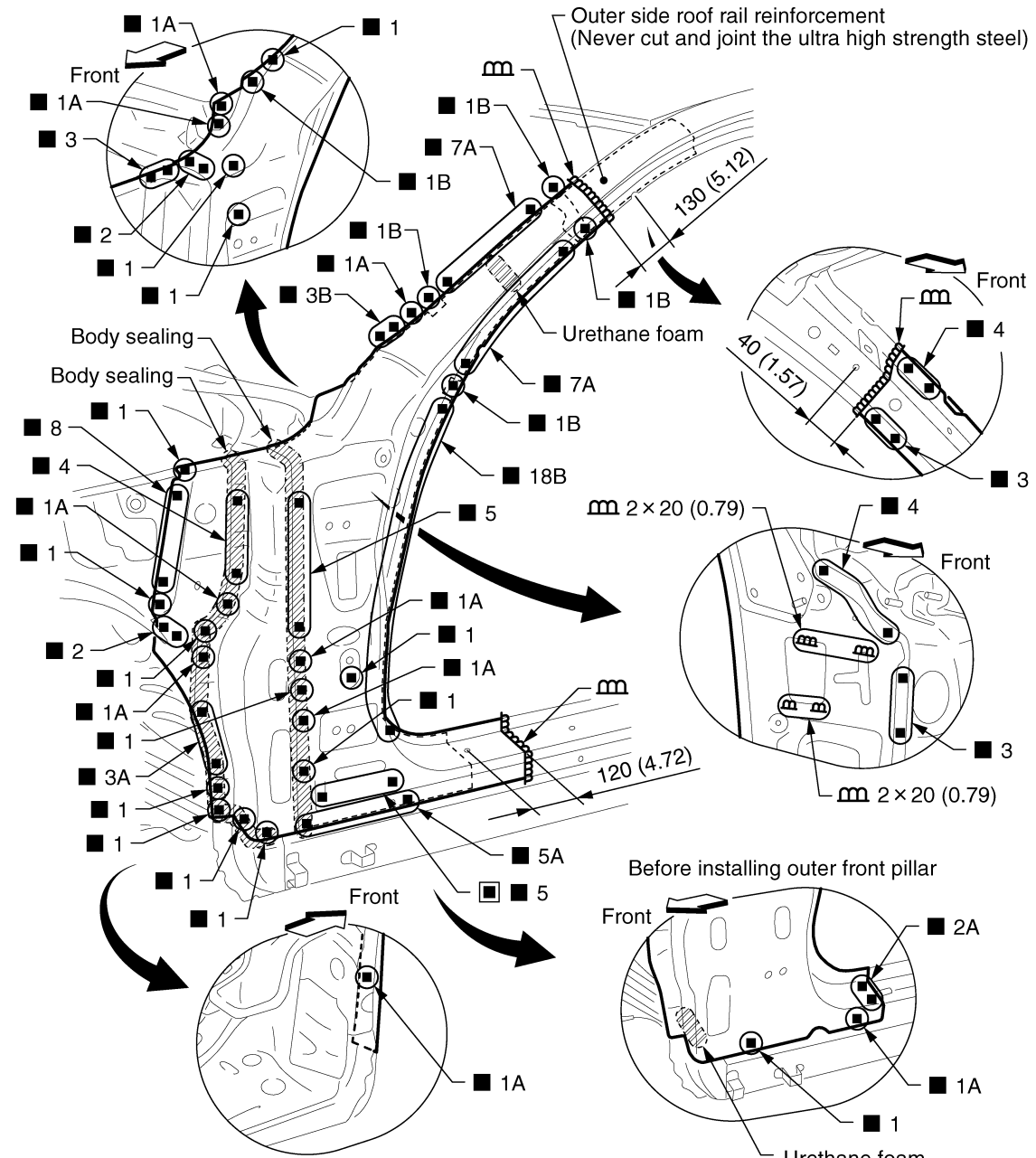
BRM

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

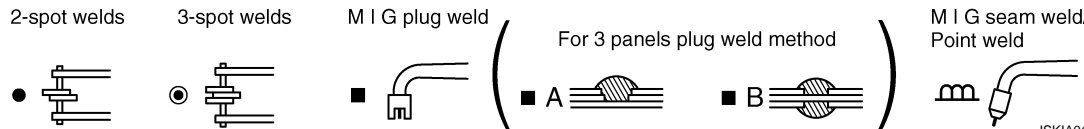
## Service Joint

Never cut and joint the outer side roof rail reinforcement (ultra high strength steel plate).



■ : Perform the plug welding instead of the laser welding.

Unit: mm (in)



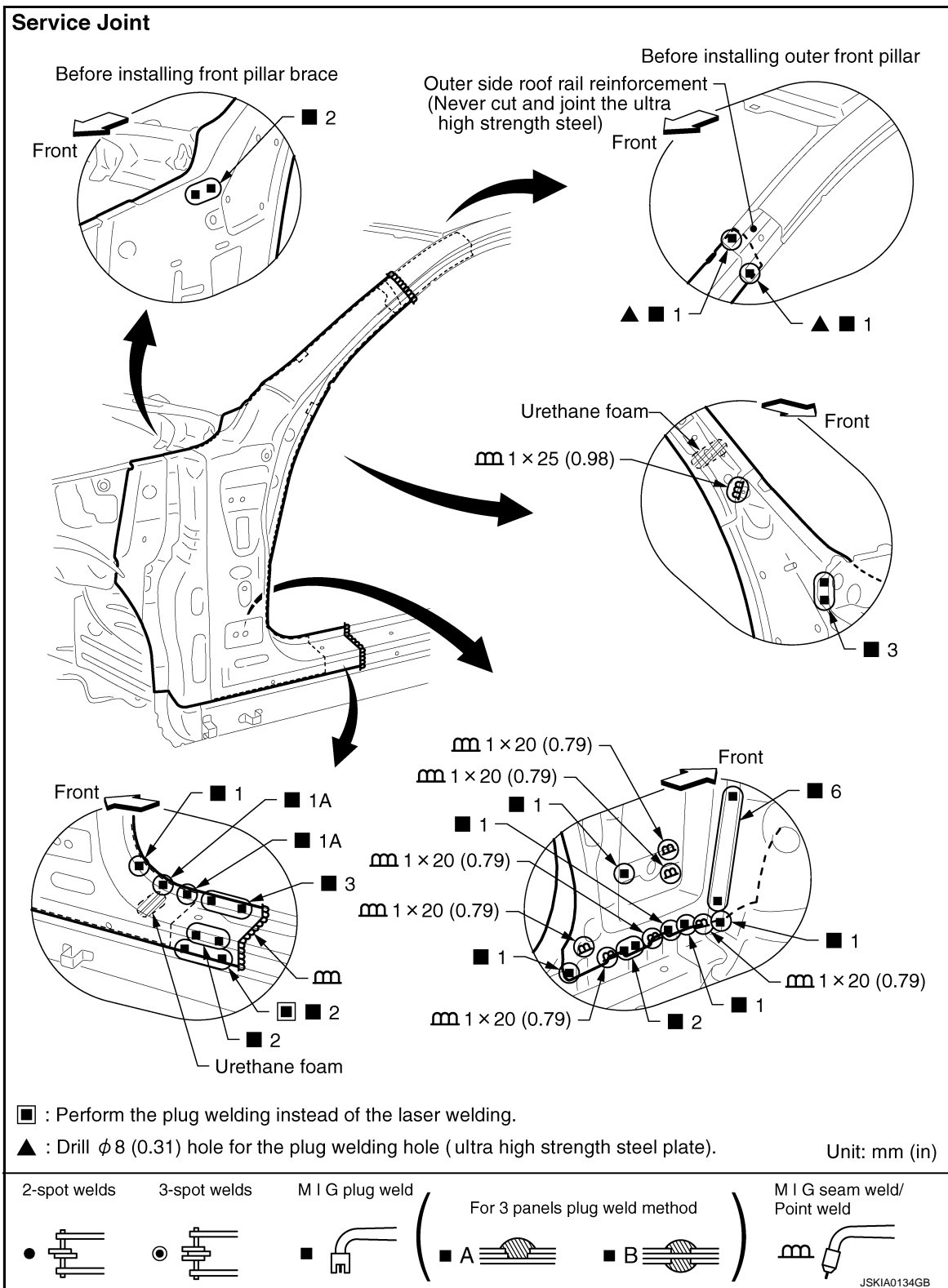
JSKIA0118GB

### Replacement parts

- Outer front side body (LH)
- Front pillar brace (LH)
- Upper rear hoodledge (LH)
- Inner roof rail reinforcement (LH)

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



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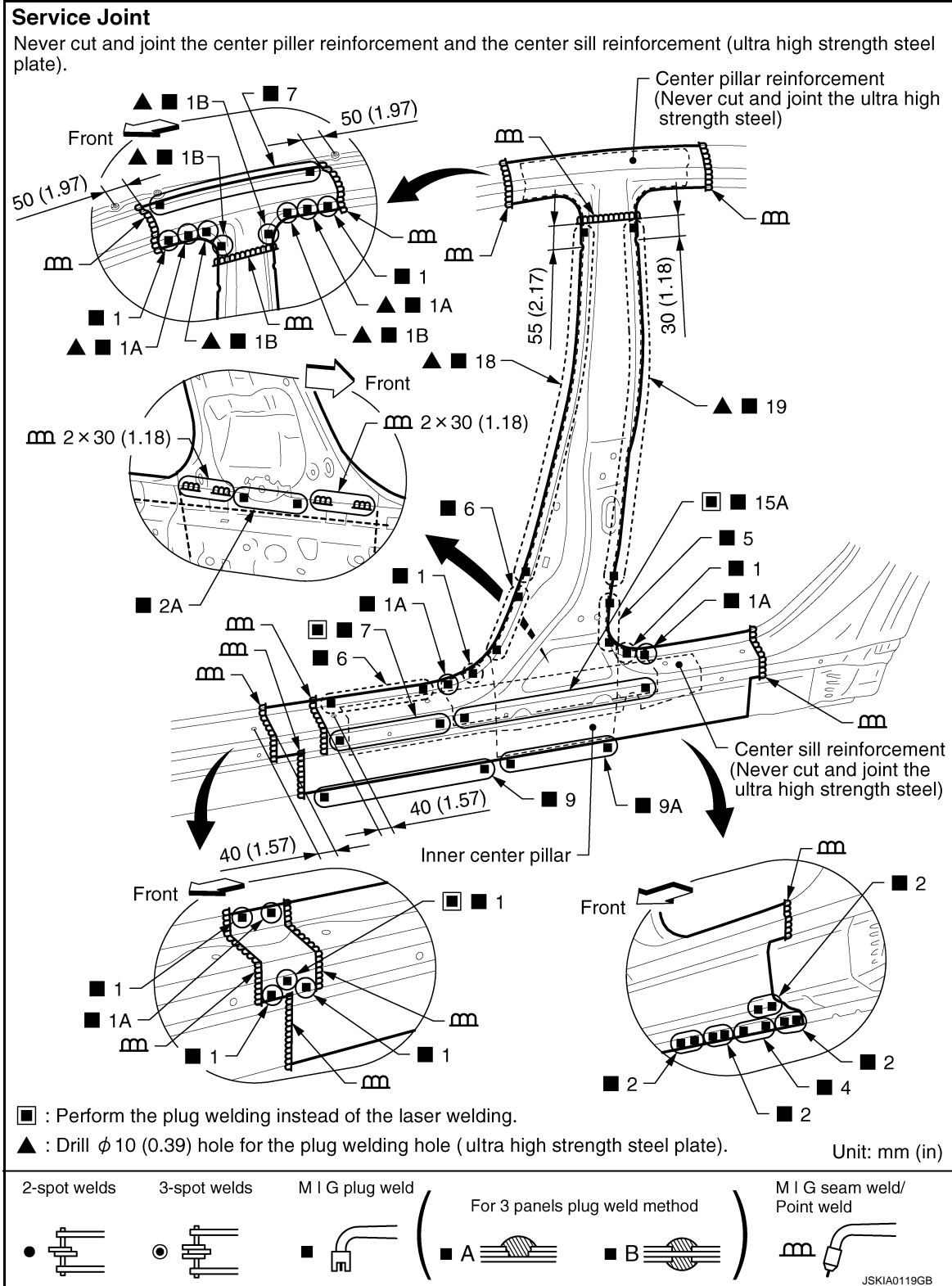
## Center Pillar

INFOID:000000001835453

Work after roof is removed.

# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >



**Replacement parts**

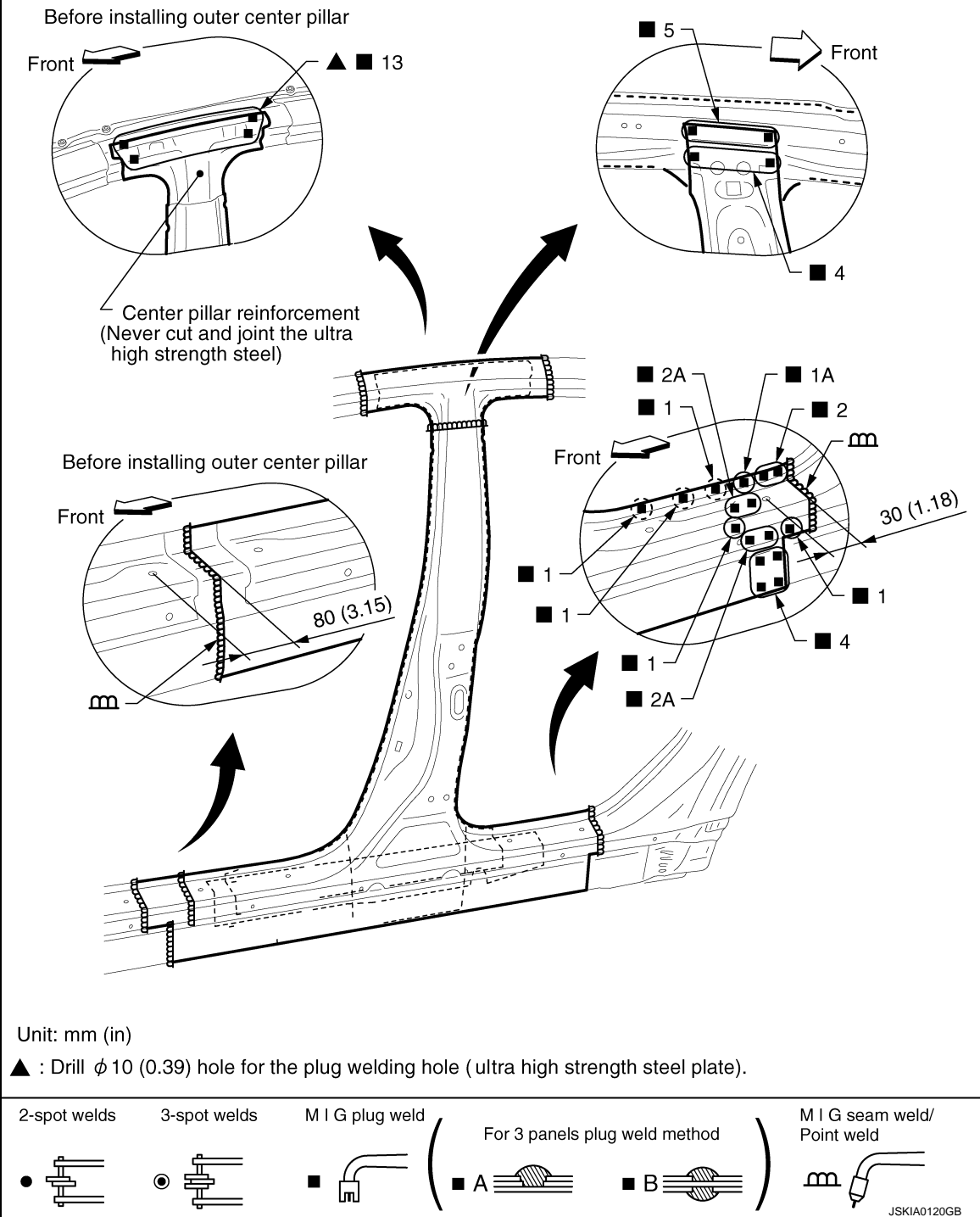
- Side body assembly (LH)
- Inner center pillar (LH)



# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

## Service Joint



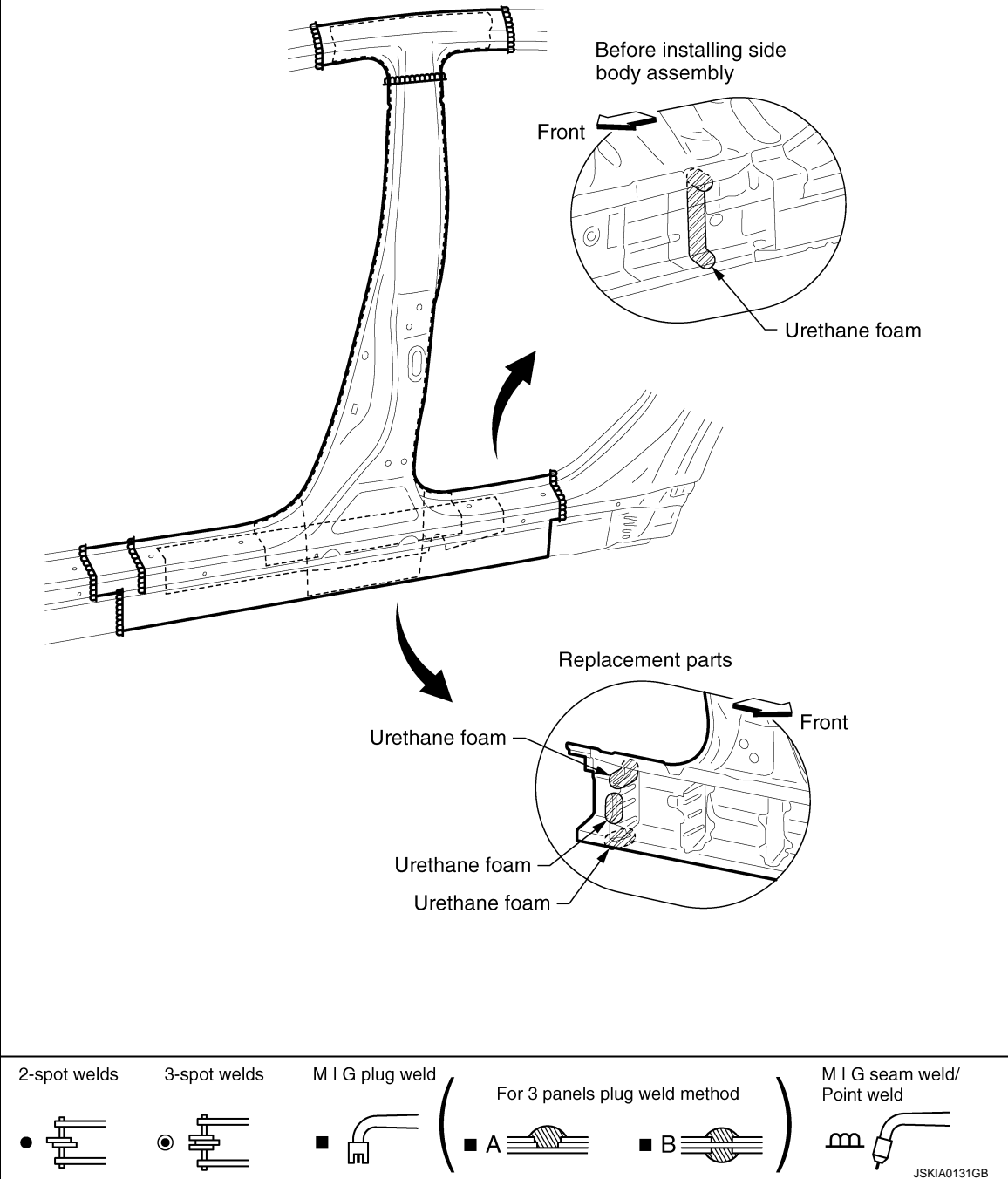
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# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

## Service Joint



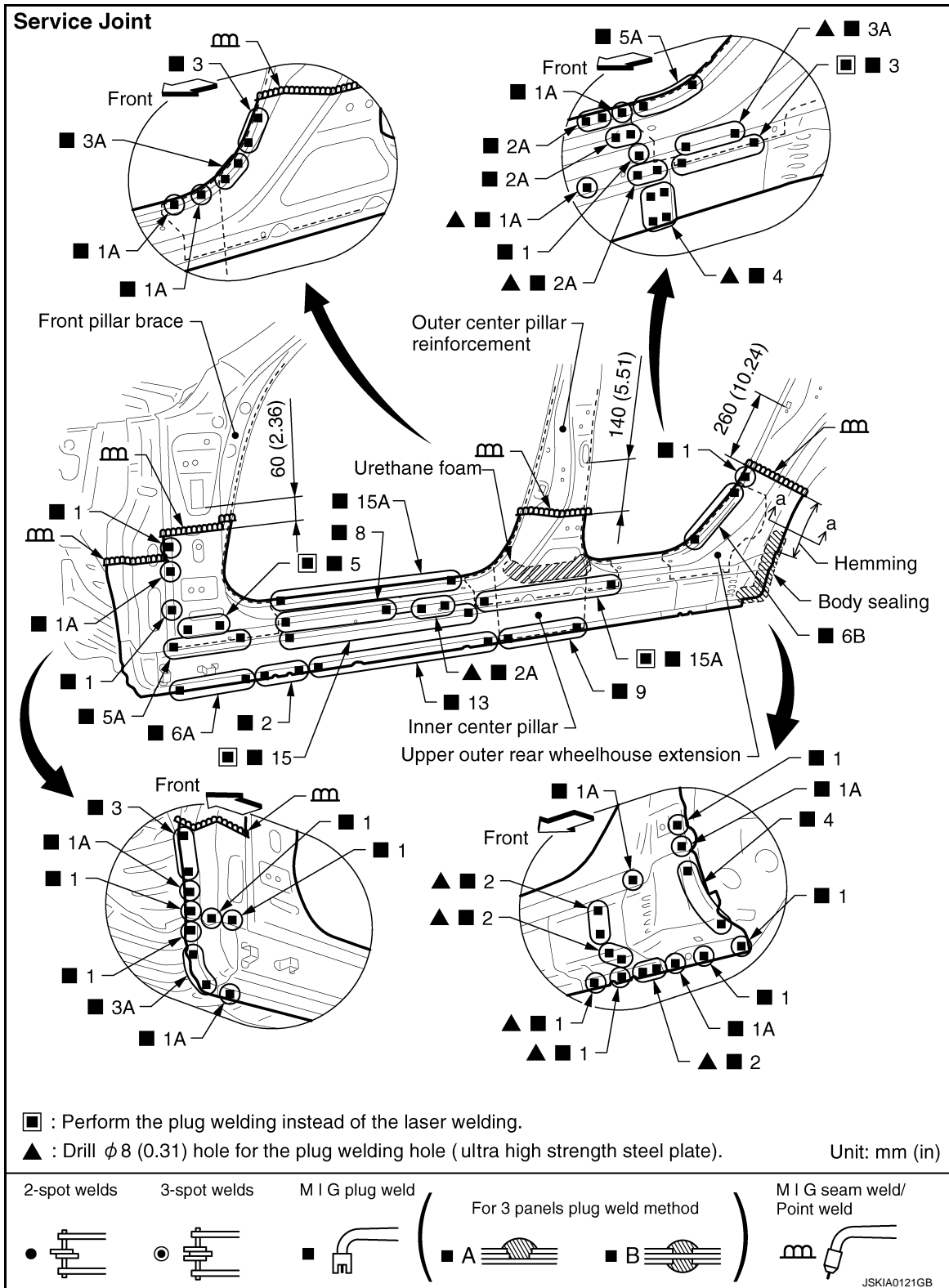
## Outer Sill

INFOID:000000001835454

Work after hoodledge reinforcement is removed.

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



**Replacement parts**

- Outer sill (LH)
- Outer sill reinforcement (LH)
- Front pillar brace (LH)
- Center pillar reinforcement (LH)
- Upper outer rear wheelhouse extension (LH)
- Lower outer rear wheelhouse extension (LH)

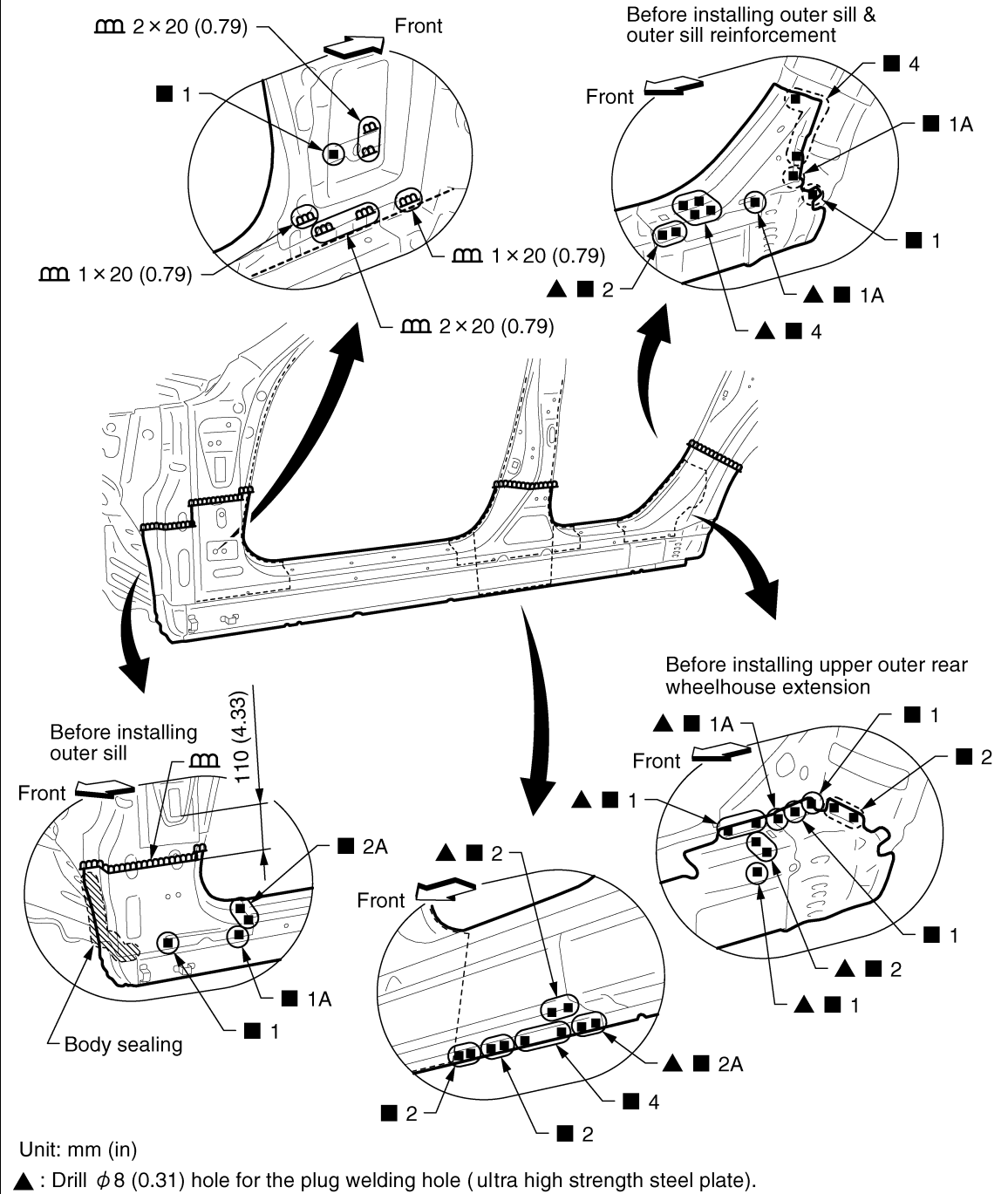
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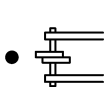
# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

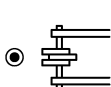
## Service Joint



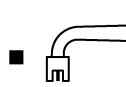
2-spot welds



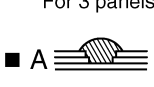
3-spot welds



M I G plug weld



For 3 panels plug weld method



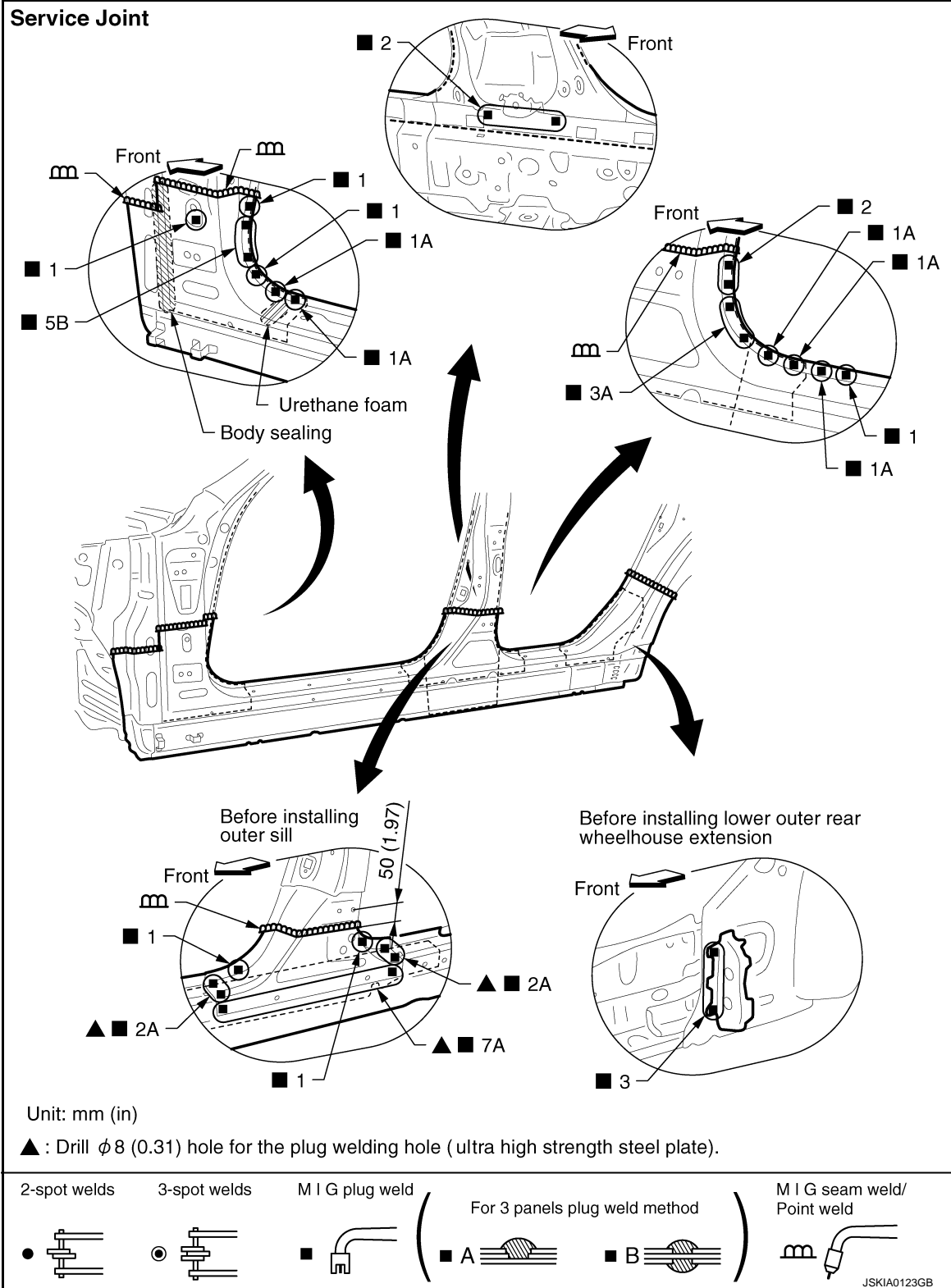
M I G seam weld/  
Point weld



JSKIA0122GB

# REPLACEMENT OPERATIONS

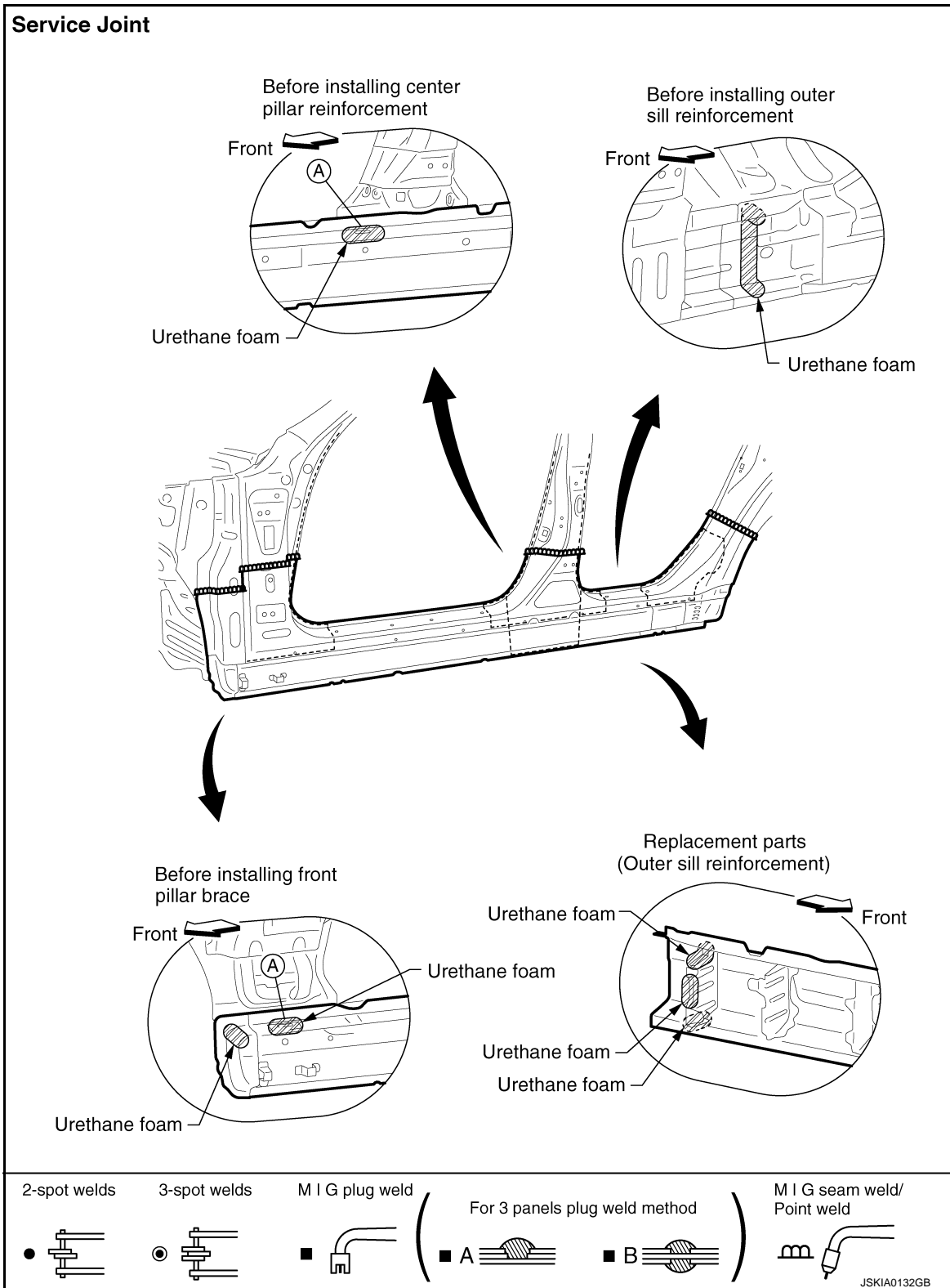
< REMOVAL AND INSTALLATION >



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# REPLACEMENT OPERATIONS

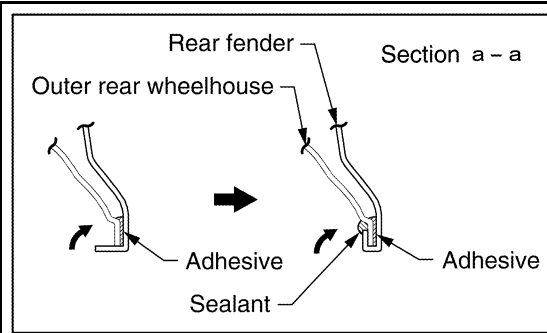
## < REMOVAL AND INSTALLATION >



A. Cover the hole with urethane foam completely.

# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >



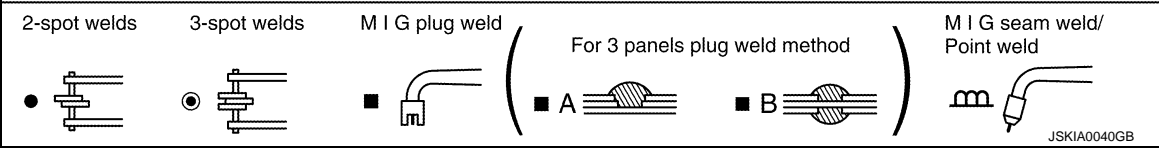
### INSTALLATION NOTES

- Apply the adhesive to the flange of wheel arch and hem it.
- Seal up the area around the hemmed end of the flange.
- Refer to "Rear fender hemming process".

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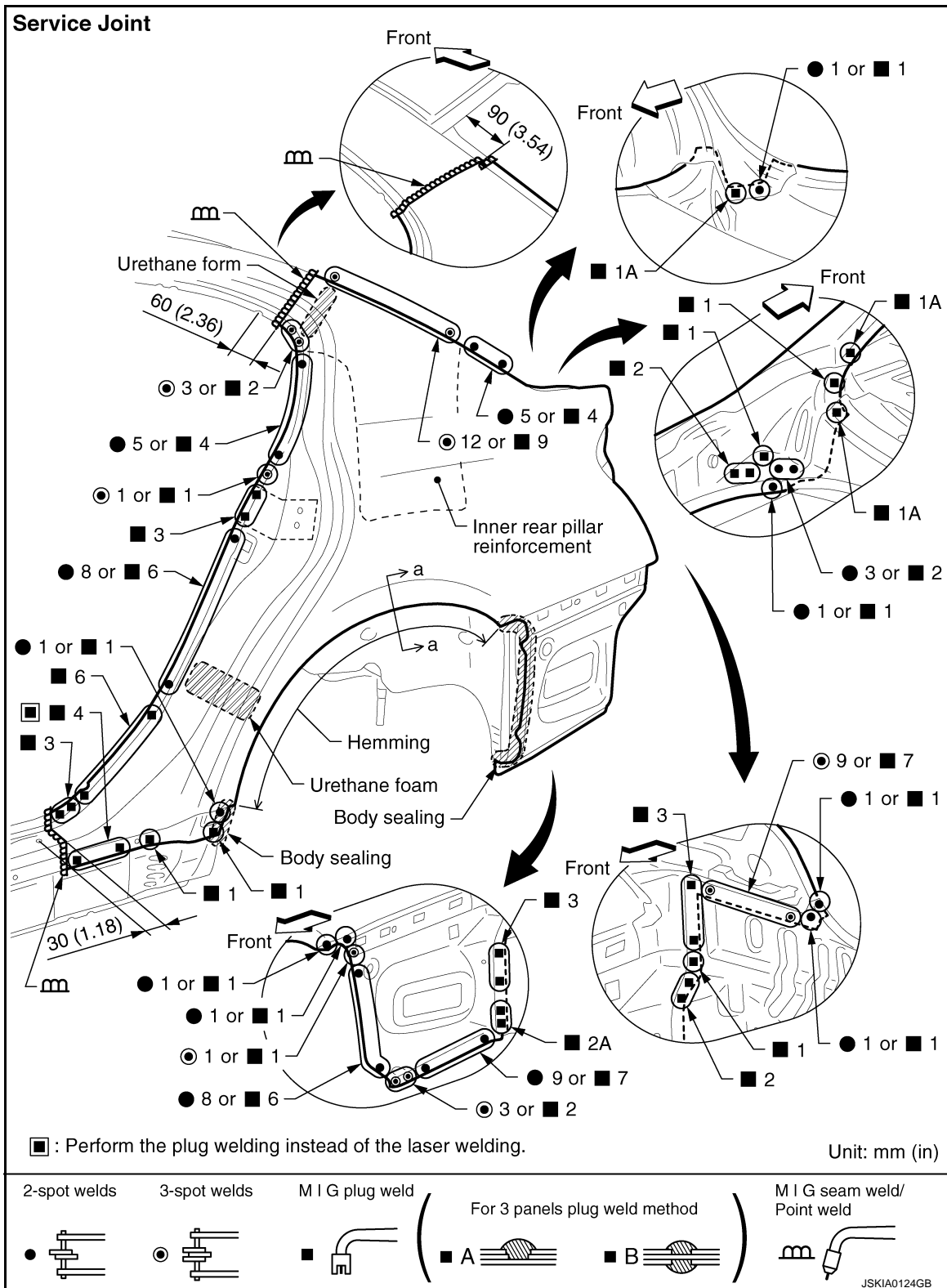


# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

## Rear Fender

INFOID:00000001835455



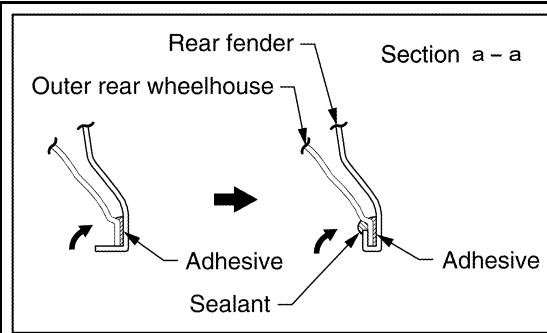
Replacement parts

- Rear fender assembly (LH)



# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >



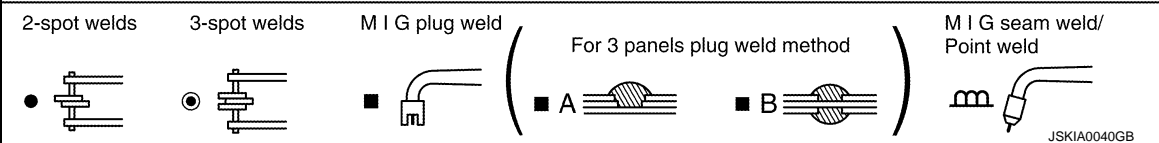
### INSTALLATION NOTES

- Apply the adhesive to the flange of wheel arch and hem it.
- Seal up the area around the hemmed end of the flange.
- Refer to "Rear fender hemming process".

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### Outer Wheelhouse

INFOID:000000001835456

Work after rear fender is removed.

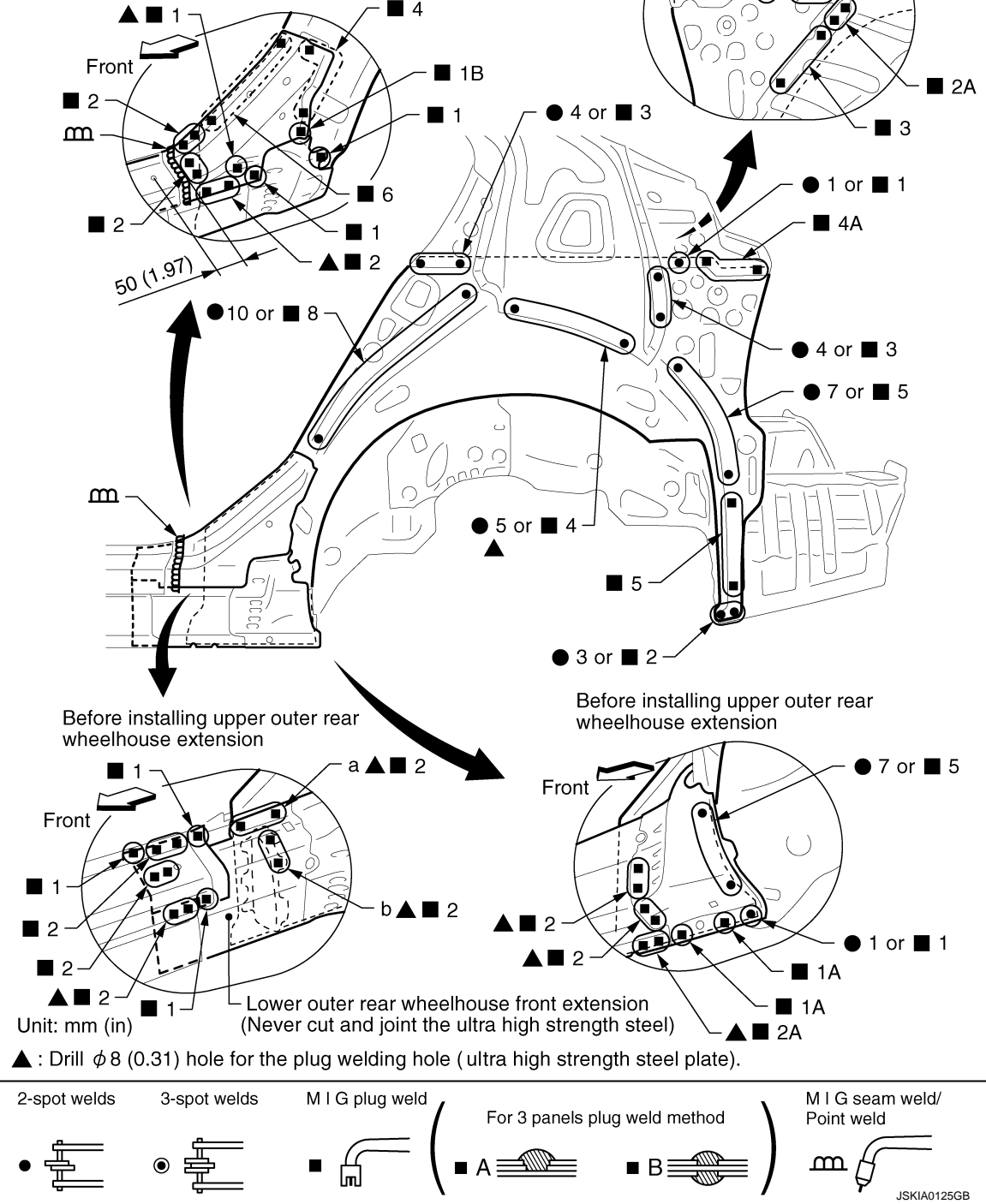
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# REPLACEMENT OPERATIONS

## < REMOVAL AND INSTALLATION >

### Service Joint

Refer to "REMOVAL" for accurate hidden welding point repair procedure.  
 Check the panel combination and structure.  
 Never cut and joint the lower outer rear wheelhouse front extension  
 (ultra high strength steel plate).



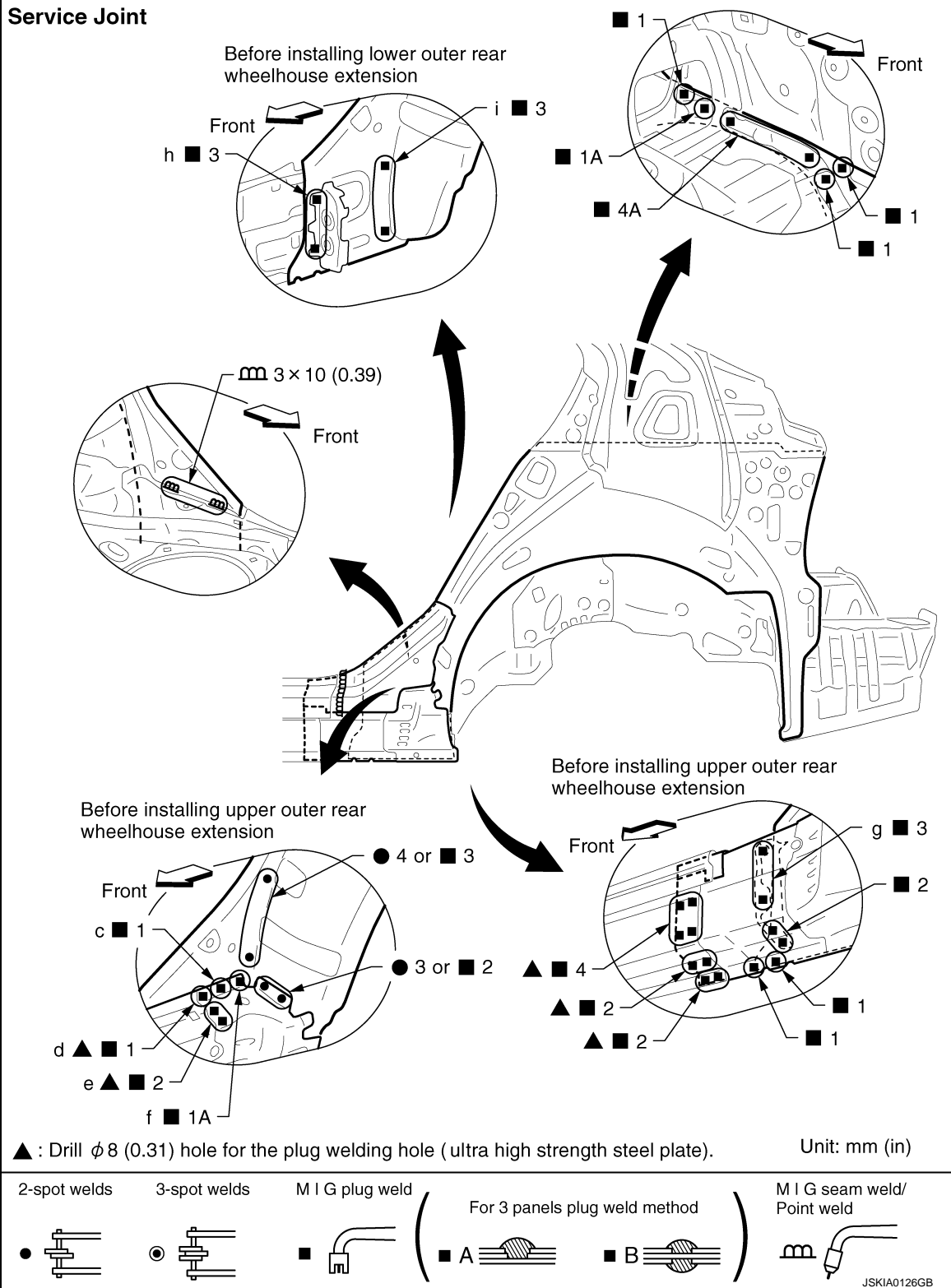
### Replacement parts

- Outer rear wheelhouse (LH)
- Upper outer rear wheelhouse extension (LH)
- Lower outer rear wheelhouse extension (LH)

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

## Service Joint

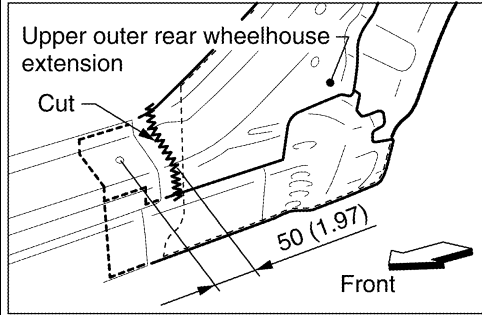


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# REPLACEMENT OPERATIONS

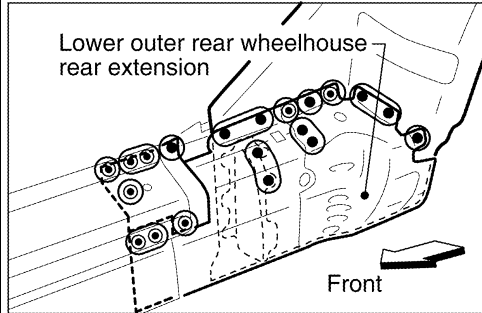
## < REMOVAL AND INSTALLATION >

### Service Joint

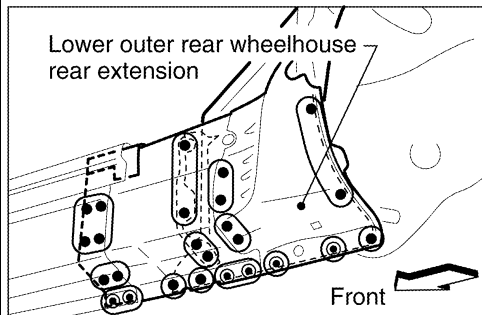


#### 【REMOVAL】

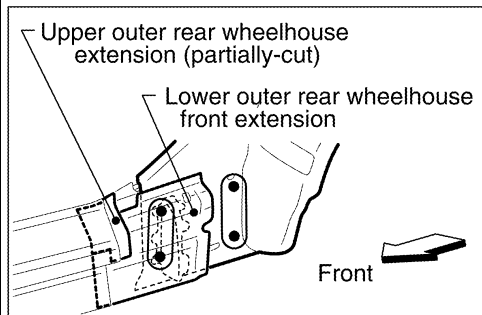
- Reuse the upper outer rear wheelhouse extension and the lower outer rear wheelhouse extension.
- Cut the upper outer rear wheelhouse extension as shown in the figure for removing the hidden welding point (a,b,c,d,e,f,g).



- Cut the lower outer rear wheelhouse rear extension as shown in the figure for removing the hidden welding point (h,i).



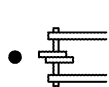
- Remove the welding point as shown in the figure.



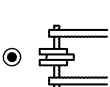
- Pull out the attached (partially-cut) upper outer rear wheelhouse extension and the lower outer rear wheelhouse front extension after removing the lower outer rear wheelhouse rear extension.
- Remove the welding point (h) of the outer rear wheelhouse bias and the outer rear wheelhouse.
- Remove the welding point (i) of the outer rear wheelhouse and the inner rear wheelhouse.

Unit: mm (in)

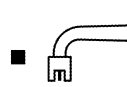
2-spot welds



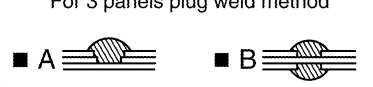
3-spot welds



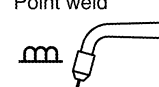
M I G plug weld



For 3 panels plug weld method



M I G seam weld/  
Point weld



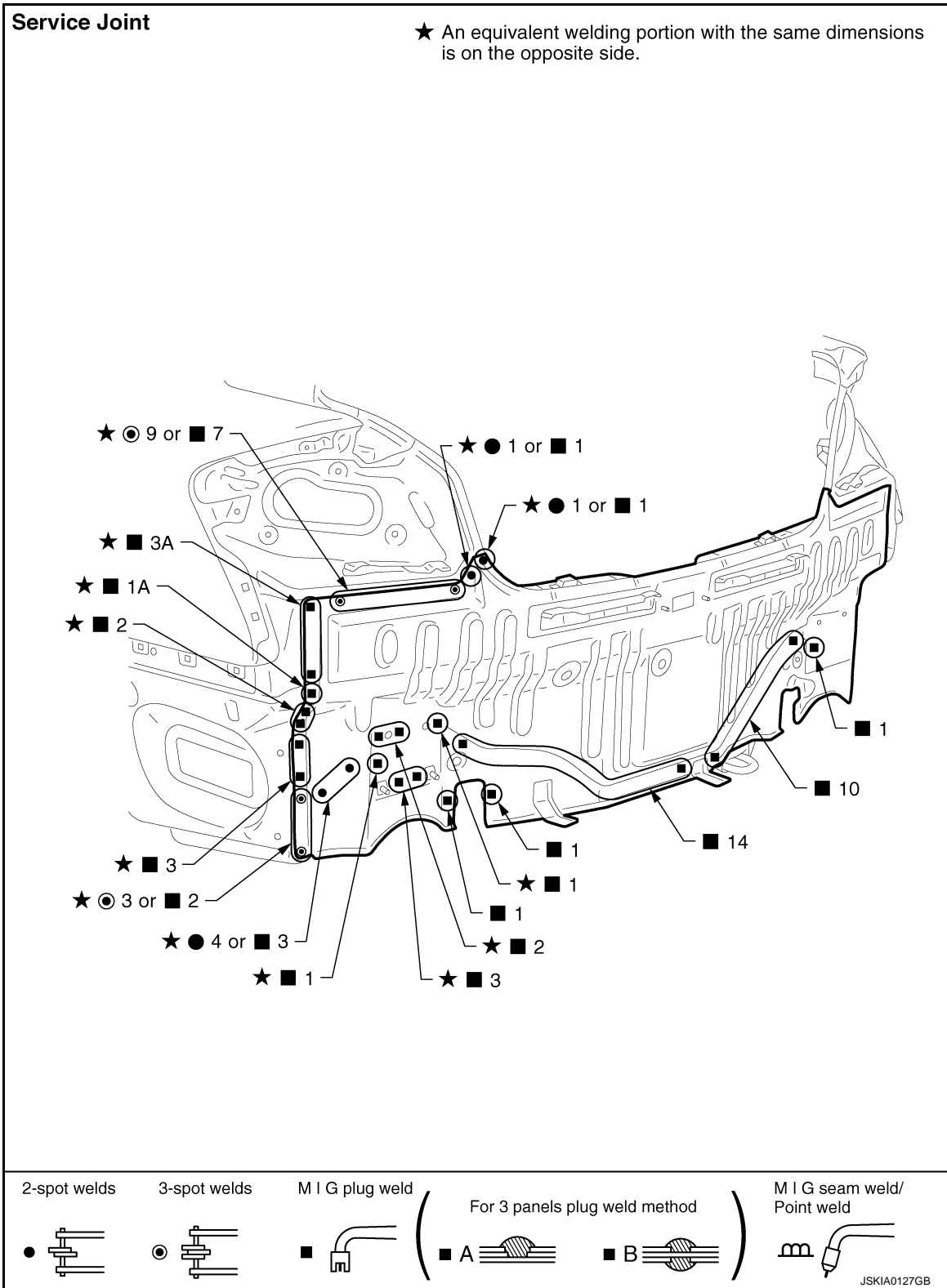
JSKI A0044GB

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

## Rear Panel

INFOID:000000001835457



Replacement parts

- Rear panel assembly

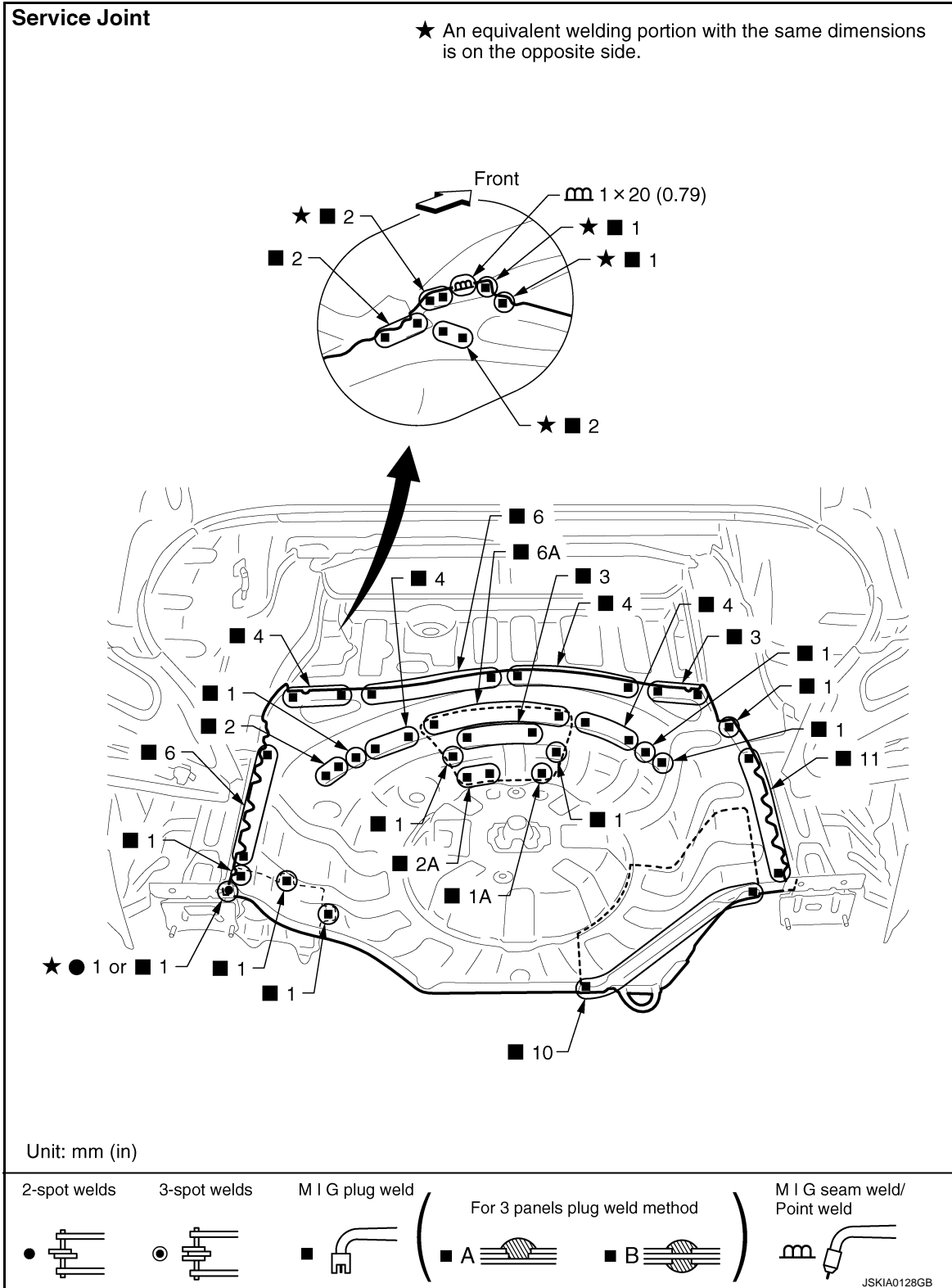
## Rear Floor Rear

INFOID:000000001835458

Work after rear panel is removed.

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



Replacement parts

- Rear floor rear
- Differential mounting bracket assembly

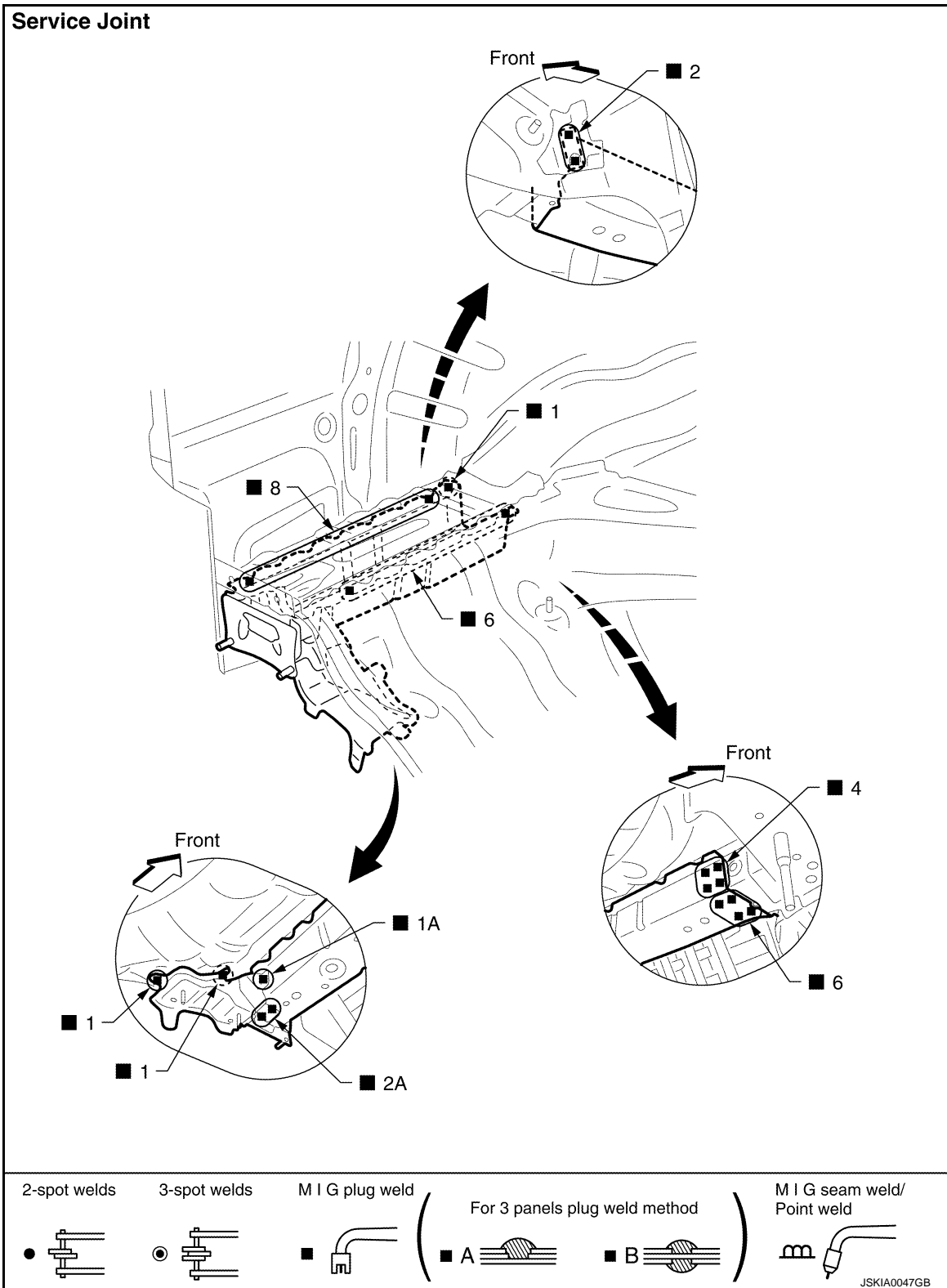
## Rear Side Member Extension

INFOID:000000001835459

Work after rear panel is removed.

# REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



Replacement parts

- Rear side member extension (LH)
- Muffer mounting bracket assembly

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