SECTION BRM
BODY REPAIR

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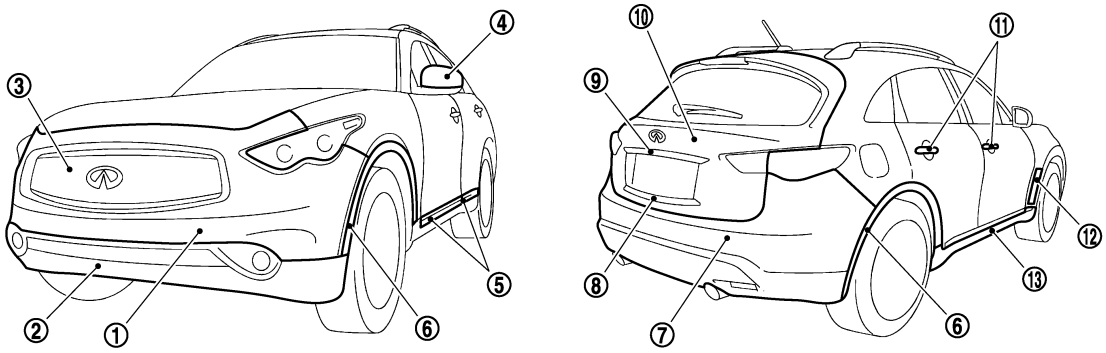
VEHICLE INFORMATION

BODY EXTERIOR PAINT COLOR

Body Exterior Paint Color

INFOID:0000000003928742



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Component			Color code	BCAC	BJAA	BKH3	BK23	BK51	BK52	BNAE	BQAA
			Description	Brown	Olive Gray	Black	Silver	Gray	Dark Gray	Dark Red	White
			Paint type [note]	M	TM	2S	M	M	PM	PM	3P
			Anti scratch advanced paint	×	×	×	×	×	×	×	×
1	Front bumper fascia		Body color	BCAC	BJAA	BKH3	BK23	BK51	BK52	BNAE	BQAA
2	Lower front bumper fascia		Material color	-	-	-	-	-	-	-	-
3	Front grille		Chromium-plate	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr
4	Door outside mirror	Cover	Body color	BCAC	BJAA	BKH3	BK23	BK51	BK52	BNAE	BQAA
5	Side guard molding		Chromium-plate	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr
			Material color	-	-	-	-	-	-	-	-
6	Fillet molding		Material color	-	-	-	-	-	-	-	-
7	Rear bumper fascia		Body color	BCAC	BJAA	BKH3	BK23	BK51	BK52	BNAE	BQAA
			Material color	-	-	-	-	-	-	-	-
8	Center back door finisher		Chromium-plate	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr
9	Back door finisher		Chromium-plate	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr
10	Back door		Body color	BCAC	BJAA	BKH3	BK23	BK51	BK52	BNAE	BQAA
11	Door outside handle		Chromium-plate	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr
12	Front fender duct		Chromium-plate	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr

BODY EXTERIOR PAINT COLOR

Component		Color code	BCAC	BJAA	BKH3	BK23	BK51	BK52	BNAE	BQAA
		Description	Brown	Olive Gray	Black	Silver	Gray	Dark Gray	Dark Red	White
		Paint type [note]	M	TM	2S	M	M	PM	PM	3P
		Anti scratch advanced paint	×	×	×	×	×	×	×	×
13	Center mud-guard	Chromium-plate	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr
		Material color	-	-	-	-	-	-	-	-

NOTE:

- 2S: Solid + Clear
- M: Metallic
- 2P: 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

PRECAUTION

HANDLING PRECAUTIONS

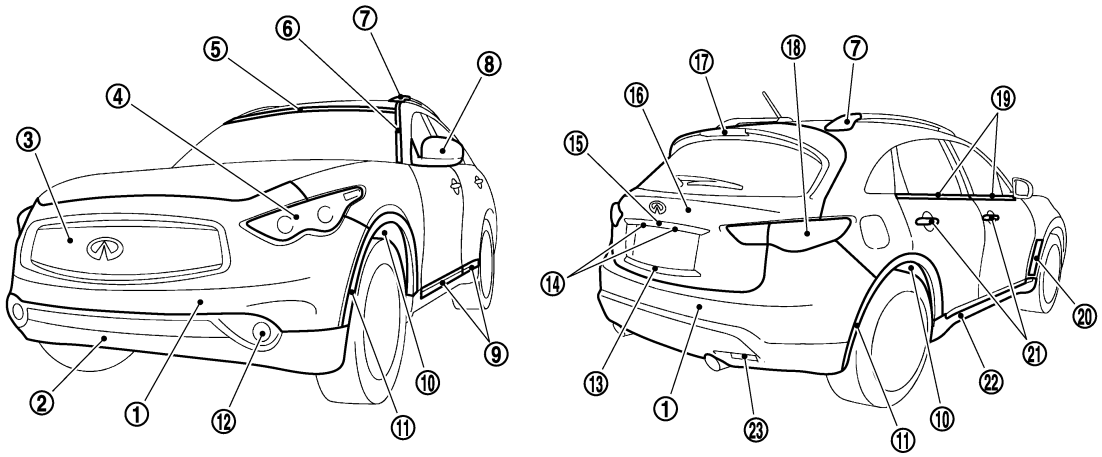
Precautions For Plastics

INFOID:0000000003928743

Abbre-viation	Material name	Heat resisting temperature °C (°F)	Resistance to gasoline and solvents	Other cautions
PE	Polyethylene	60 (140)	Gasoline and most solvents are harmless if applied for a very short time (wipe up quickly).	Flammable
ABS	Acrylonitrile Butadiene Styrene	80 (176)	Avoid gasoline and solvents.	—
EPM/ EPDM	Ethylene Propylene (Diene) co-polymer	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	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.

LOCATION OF PLASTIC PARTS



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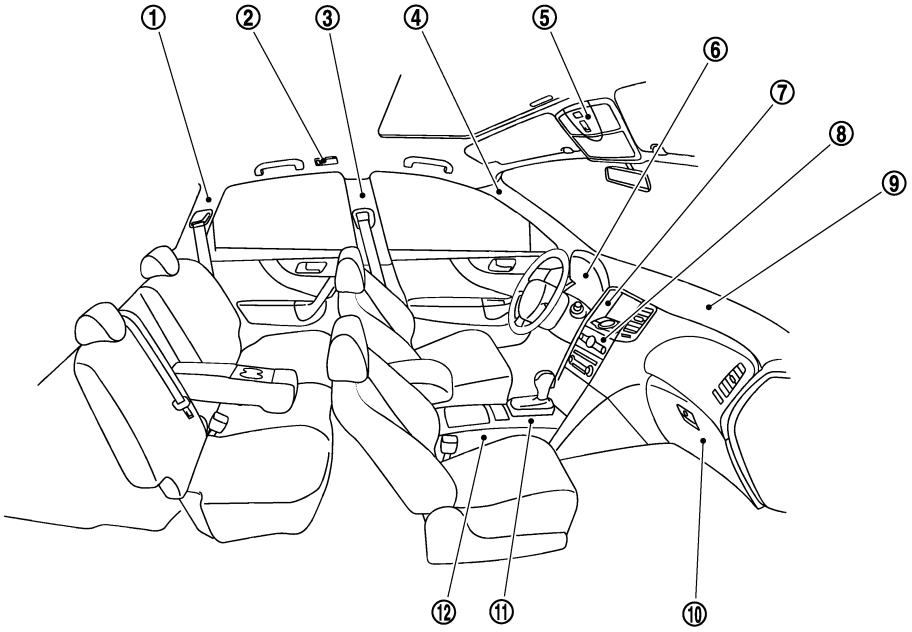
Component			Material	Component			Material
1	Bumper fascia		PP + EPM	13	Center back door finisher		ABS
2	Lower front bumper fascia		PP + EPM	14	License plate lamp	Lens	PC
3	Front grille	Grille	ABS			Housing	PC
		Molding	ABS	15	Back door finisher		ABS
4	Front combination lamp	Lens	PC	16	Back door		PP
		Housing	PP	17	High mount stop lamp	Lens	PMMA
5	Upper windshield molding		TPO			Housing	ABS
6	Roof side molding		PVC + Stainless	18	Rear combination lamp (Rear Fender)	Lens	PMMA
7	Roof rack cover		ABS			Housing	ABS
8	Door outside mirror	Cover	ABS		Rear combination lamp (Back door)	Lens	PMMA
		Housing	ABS			Housing	ASA
		Base	ABS	19	Door outside molding		PVC + Stainless
9	Side guard molding	Body	PP	20	Front fender duct	Outer	ABS
		Molding	ABS			Inner	ASA
10	Fender protector	Front	PP	21	Door outside handle		PC + ABS
		Rear	PET	22	Center mudguard	Body	PP
11	Fillet molding		PP + EPM			Molding	ABS
12	Front fog lamp	Lens	Glass	23	Reflex reflector	Lens	PMMA
		Housing	PBT + ASA + Glass fiber			Housing	ABS



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Component			Material	Component			Material
1	Rear pillar finisher		PP	8	Cluster lid C		PC + ABS
2	Personal lamp	Lens	PC	9	Instrument panel	Skin	TPU
		Housing	PP			Pad	PP
3	Center pillar garnish		PP	10	Glove box	Skin	PVC
4	Front pillar garnish		PP			Core	ABS
5	Map lamp	Lens	PC	11	Console finisher		ABS
		Housing	PP	12	Console body	Skin	PVC
6	Cluster lid A		PP			Core	PP
7	Cluster lid D		PC + ABS				

REMOVAL AND INSTALLATION

BODY COMPONENT PARTS

Underbody Component Parts

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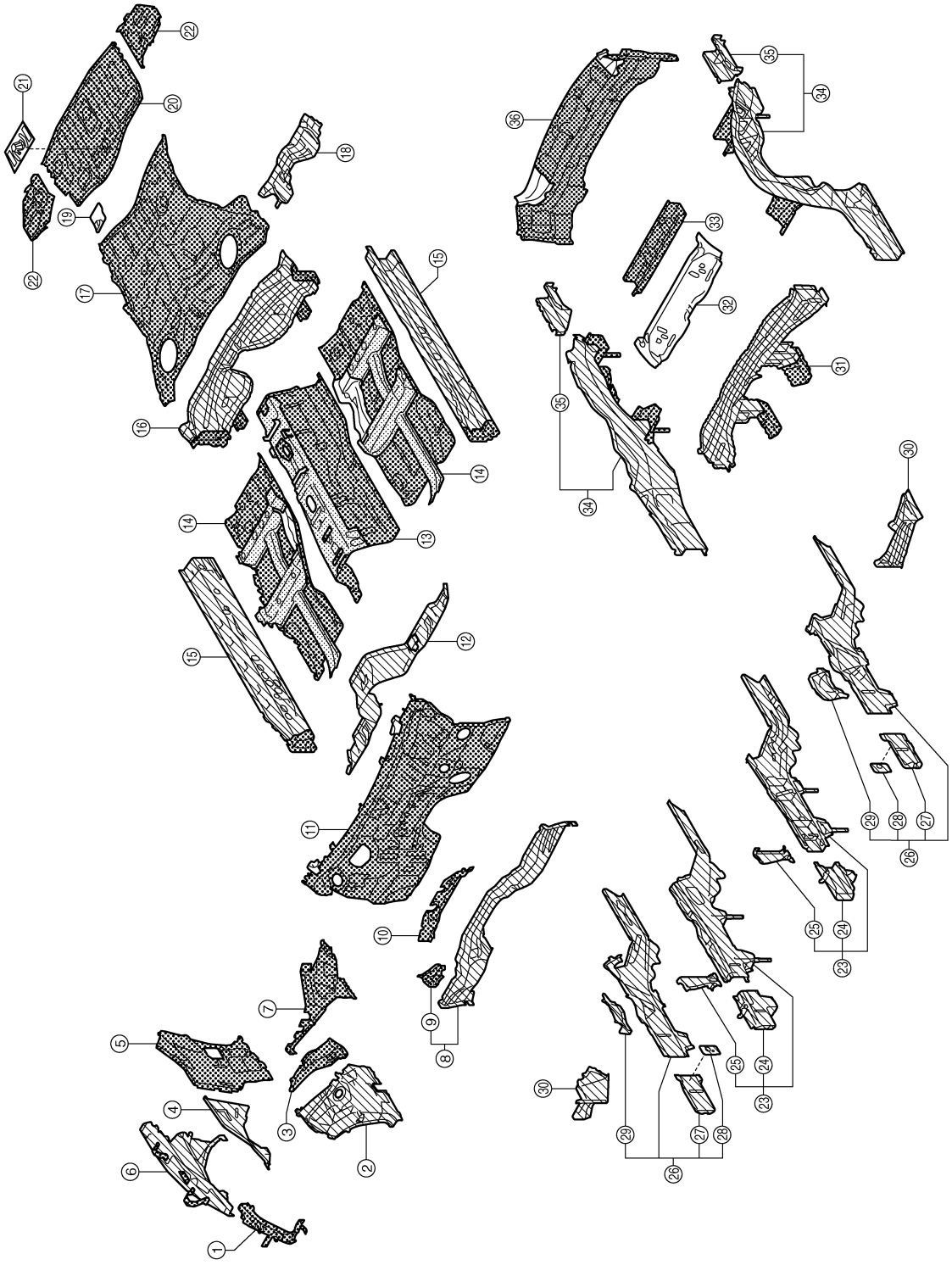

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1. Side radiator core support assembly (RH & LH)
2. Front strut housing (RH & LH)
3. Lower rear hoodledge (RH & LH)
4. Upper front hoodledge (RH & LH)
5. Upper rear hoodledge (RH & LH)
6. Hoodledge reinforcement (RH & LH)
7. Upper side cowl top (RH & LH)
8. Lower dash crossmember assembly
9. Lower outer battery support bracket
10. Upper front cowl top assembly
11. Upper dash
12. Lower dash
13. Center front floor
14. Front floor (RH & LH)
15. Inner sill (RH & LH)
16. Rear seat crossmember reinforcement assembly
17. Rear floor front
18. Rear floor seat belt anchor reinforcement
19. Rear floor side reinforcement
20. Rear floor rear
21. Spare tire clamp reinforcement
22. Rear floor side (RH & LH)
23. Front side member assembly (RH & LH)
24. Front side member front extension (RH & LH)
25. Front side member connector assembly (RH & LH)
26. Front side member closing plate assembly (RH & LH)
27. Front side member front closing plate (RH & LH)
28. Front side rear closing reinforcement (RH & LH)
29. Front side member center closing plate (RH & LH)
30. Front side member outrigger assembly (RH & LH)
31. Rear seat crossmember
32. 2nd rear crossmember
33. Rear crossmember center assembly
34. Rear side member assembly (RH & LH)
35. Rear side member extension (RH & LH)
36. Rear end crossmember assembly

: Both sided anti-corrosive precoated steel sections

: High strength steel (HSS) sections

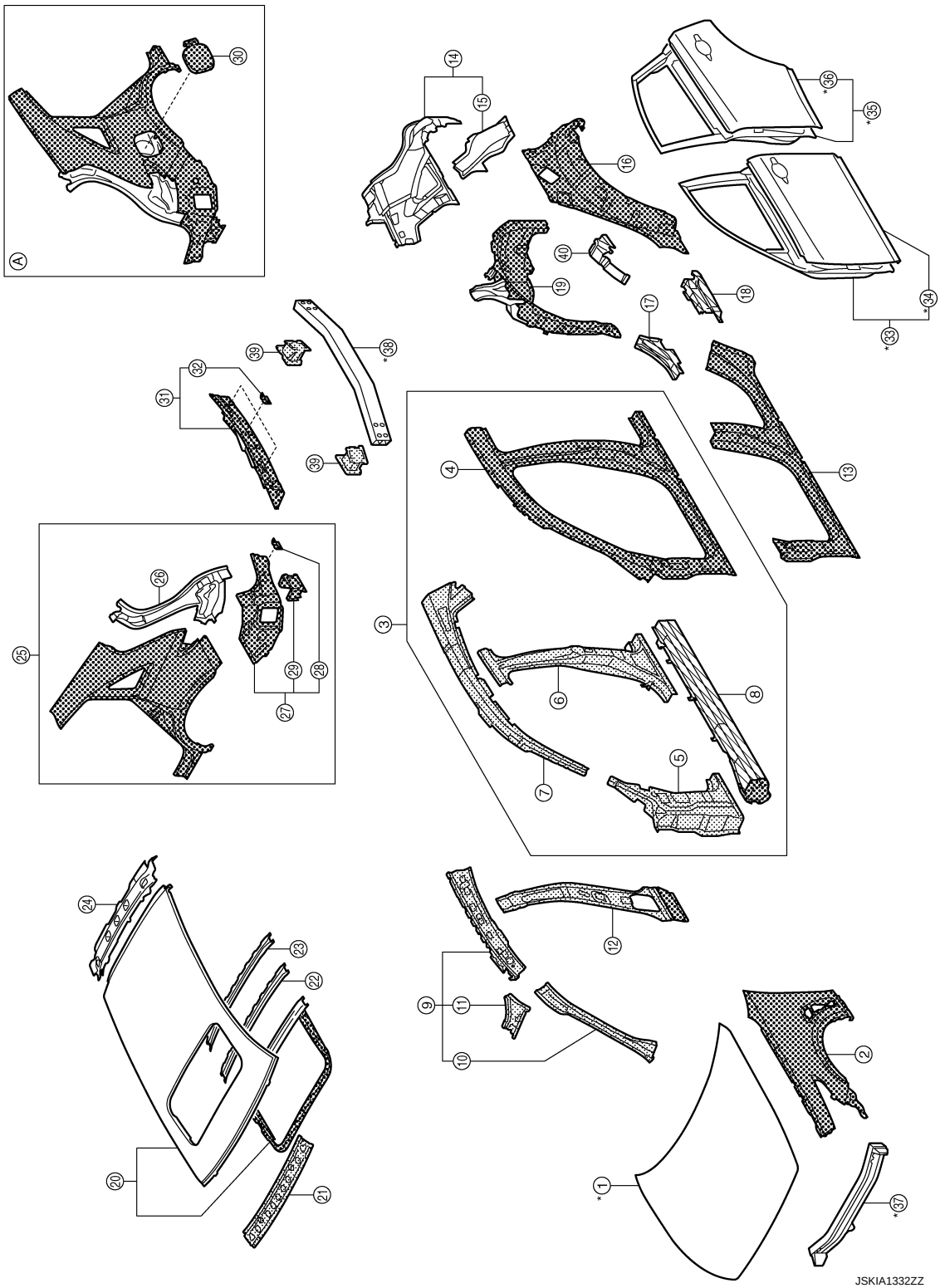
: Both sided anti-corrosive steel and HSS sections

NOTE:

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

Body Component Parts

INFOID:0000000003858152



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)

10. Upper inner front pillar assembly (RH & LH)
11. Front roof rail brace (RH & LH)
12. Inner center pillar (RH & LH)
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)
19. Inner rear wheelhouse (RH & LH)
20. Roof
21. Front roof rail
22. Roof bow No. 2
23. Roof bow No. 3
24. Rear roof rail
25. Rear fender assembly (RH & LH)
26. Upper back pillar assembly (RH & LH)
27. Lower back pillar assembly (RH & LH)
28. Rear side bumper retainer (RH & LH)
29. Rear bumper stay reinforcement
30. Fuel filler lid
31. Rear panel assembly
32. Upper rear bumper retainer
33. Front door assembly (RH & LH)
34. Outer front door panel (RH & LH)
35. Rear door assembly (RH & LH)
36. Outer rear door panel (RH & LH)
37. Inner center front bumper reinforcement
38. Inner center rear bumper reinforcement
39. Rear bumper stay (RH & LH)
40. Outer rear wheelhouse reinforcement (RH & LH)

: Both sided anti-corrosive precoated steel sections
: High strength steel (HSS) sections
: Both sided anti-corrosive steel and HSS sections
*: Aluminum portion

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.

CORROSION PROTECTION

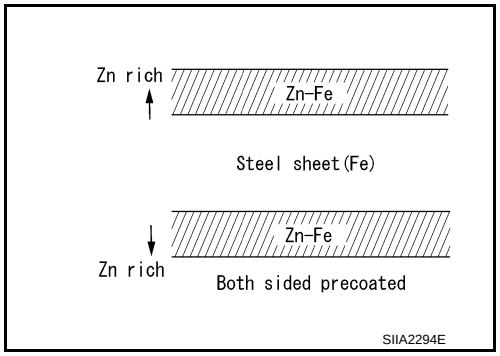
Description

INFOID:0000000003858153

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.



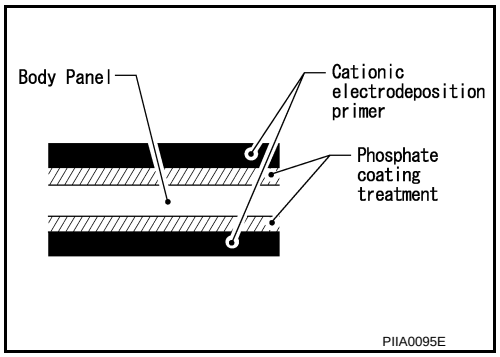
NISSAN genuine parts are fabricated from galvannealed steel. Therefore, it is recommended that NISSAN genuine parts or an equivalent be used for panel replacement to maintain the anti-corrosive performance built into the vehicle at the factory.

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.

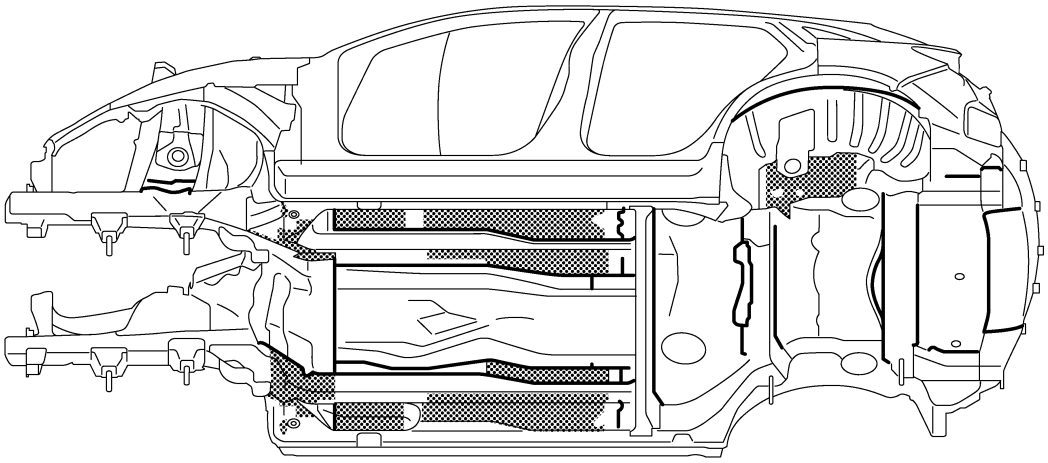
Undercoating

INFOID:0000000003858155

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

Precautions in Undercoating

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



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: Undercoated portions

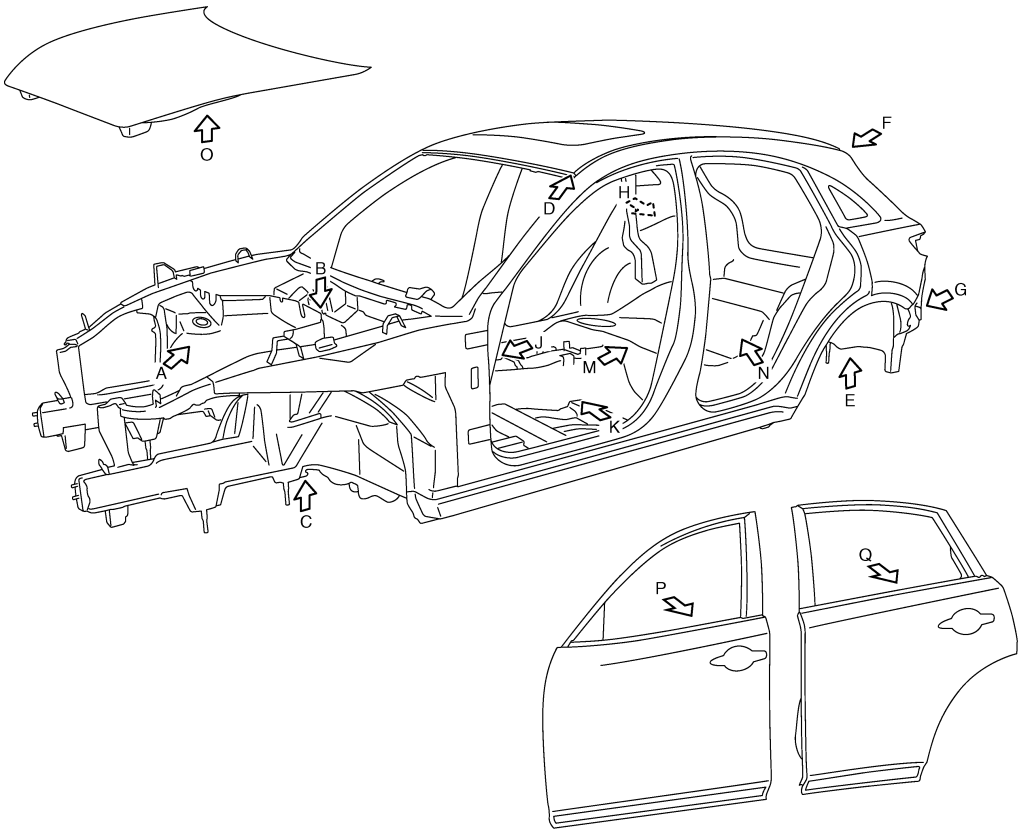
: Sealed portions

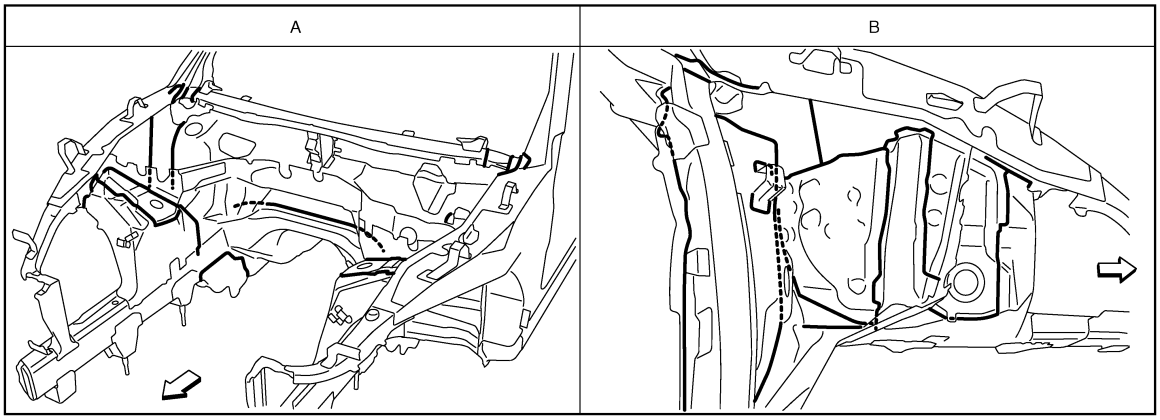
BODY SEALING

Body Sealing

INFOID:0000000003858156

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.





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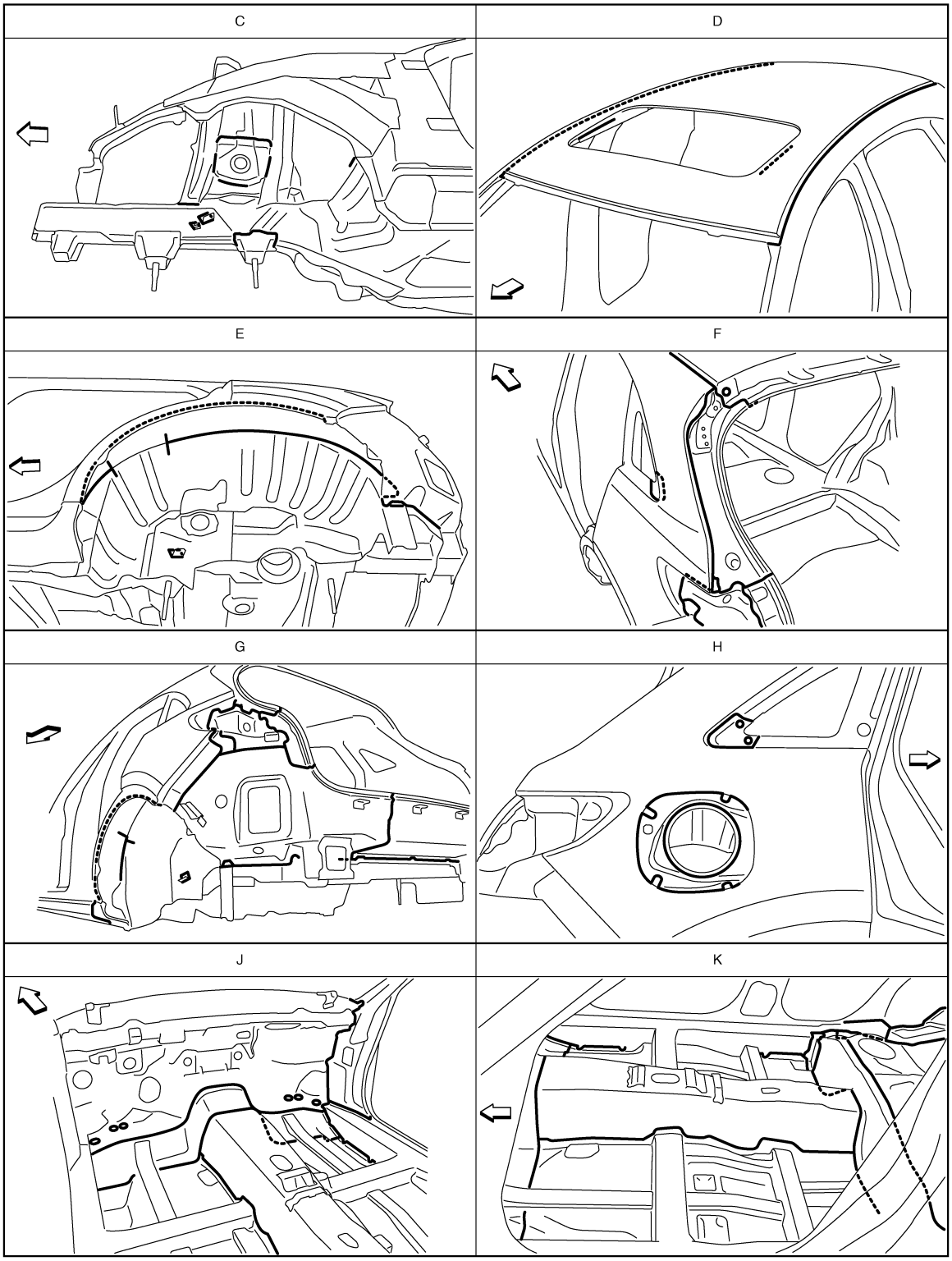
⇦: Vehicle front

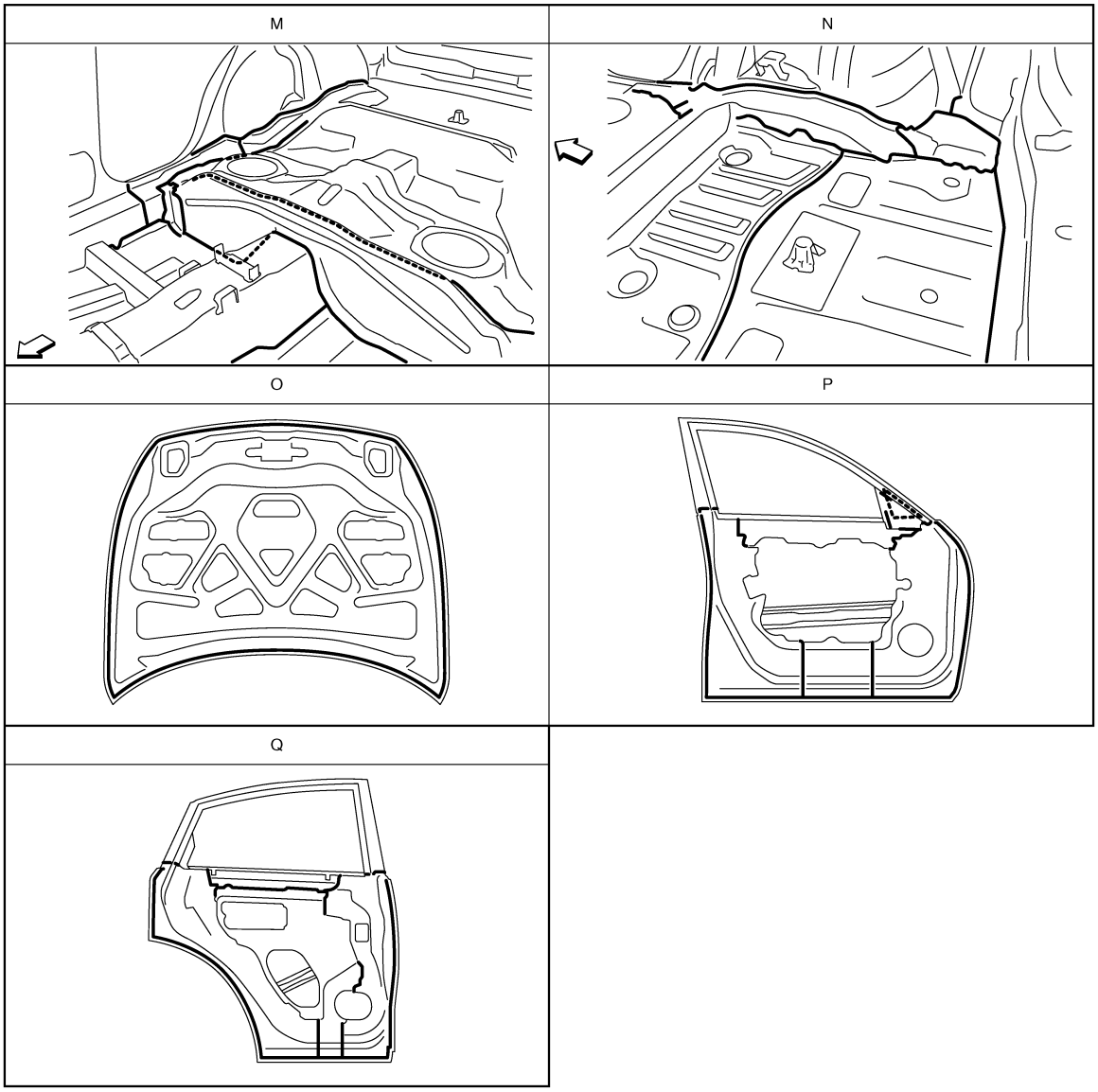
▬: Sealed portions



JSKIA1336ZZ

⇦: Vehicle front

▬: Sealed portions



JSKIA0698ZZ

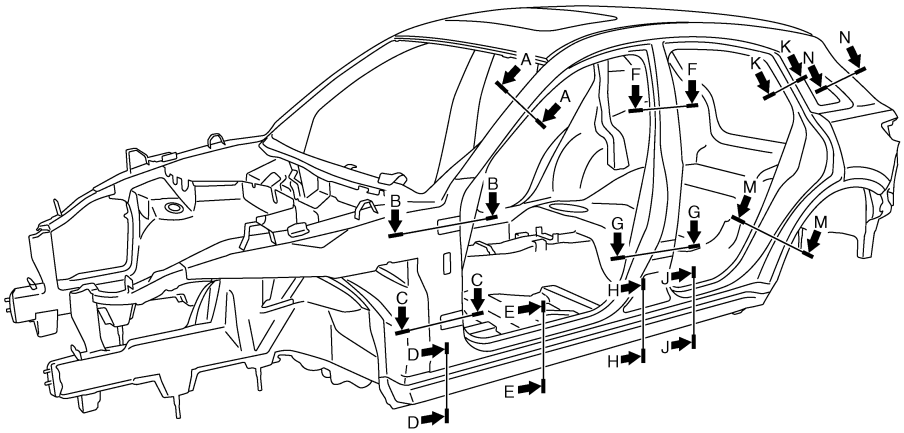
⇦: Vehicle front

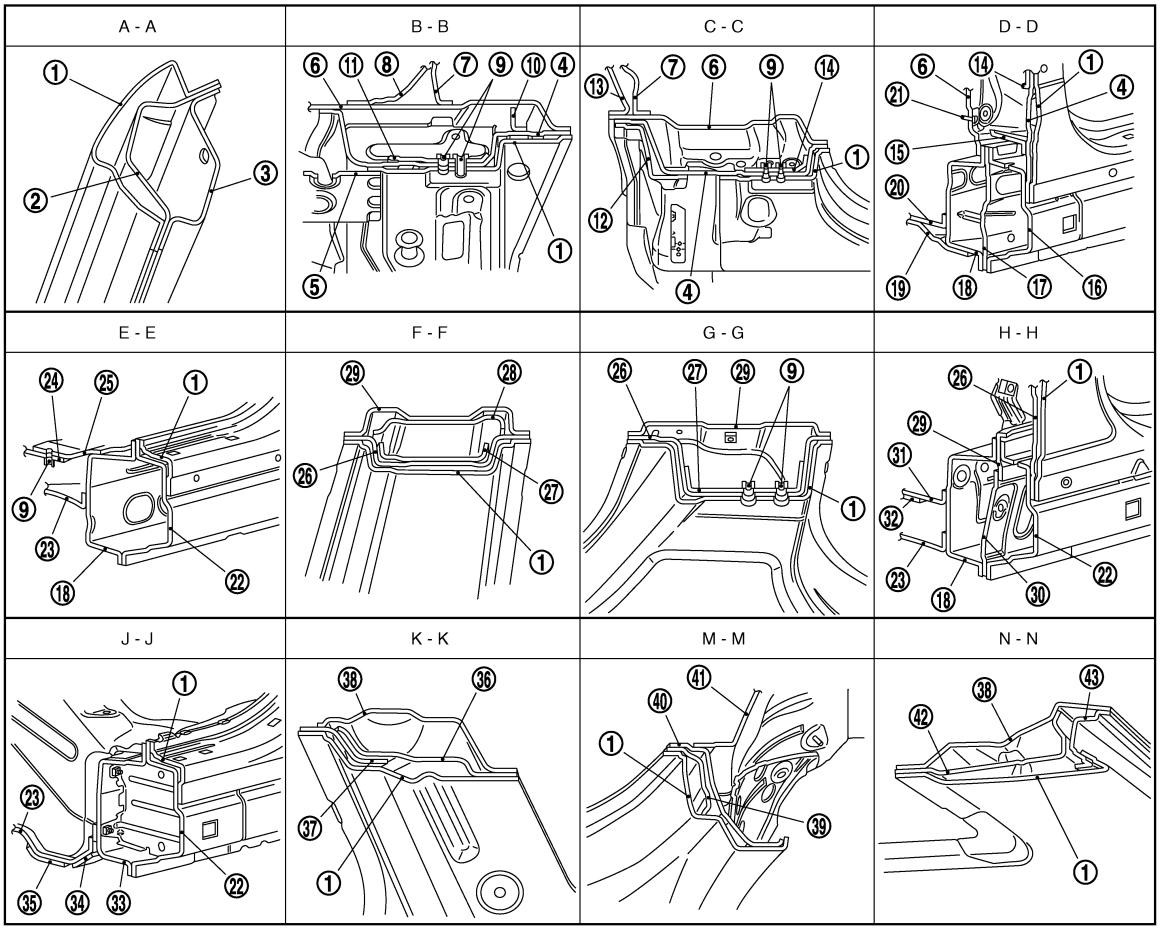
▬: Sealed portions

BODY CONSTRUCTION

Body Construction

INFOID:0000000003858157





JSKIA0713ZZ

1. Outer side body
2. Outer front pillar reinforcement
3. Upper inner front pillar
4. Front pillar hinge brace
5. Hoodledge reinforcement
6. Upper rear hoodledge
7. Upper dash
8. Upper dash reinforcement
9. Weld nut

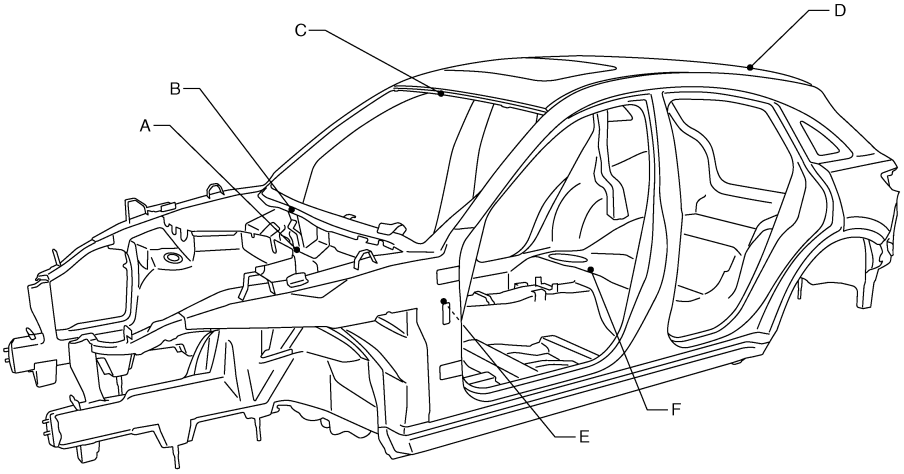
10. Outer front pillar bracket
11. Front pillar hinge front reinforcement
12. Rear hoodledge reinforcement
13. Lower dash crossmember
14. Lower hinge plate
15. Lower front pillar gusset
16. Outer front sill reinforcement
17. Lower front pillar reinforcement
18. Inner sill
19. Front side member outrigger
20. Lower dash
21. Weld bolt
22. Outer sill reinforcement
23. Front floor
24. 2nd crossmember
25. Front floor gusset
26. Center pillar reinforcement
27. Center pillar seat belt reinforcement
28. Center pillar seat belt anchor
29. Inner center pillar
30. Lower inner center pillar
31. 3rd crossmember
32. Nut plate
33. Rear side member front
34. Rear floor reinforcement
35. Rear seat crossmember reinforcement
36. Inner rear pillar reinforcement
37. Side roof rail reinforcement
38. Inner rear pillar
39. Outer rear wheelhouse extension
40. Outer rear wheelhouse
41. Inner rear wheelhouse
42. Upper back pillar reinforcement
43. Upper back pillar main

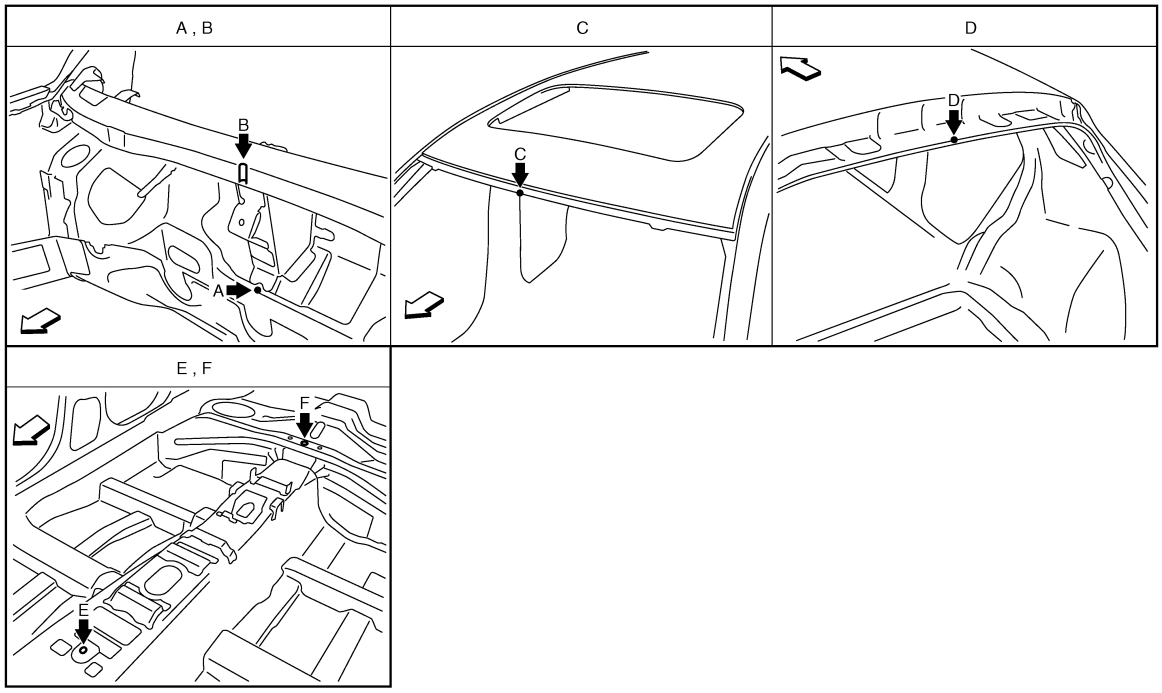
BODY ALIGNMENT

Body Center Marks

INFOID:0000000003858158

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.





JSKIA0660ZZ

⇦: Vehicle front

Unit: mm (in)

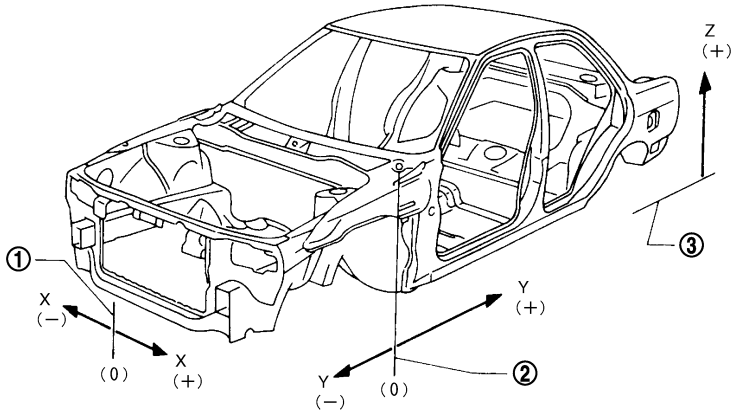
Points	Portion	Marks
A	Upper dash	Embossment
B	Upper dash crossmember	Bead
C	Front roof	Embossment
D	Rear roof	Indent

Points	Portion	Marks
E	Trans control reinforcement	Hole 12×14 (0.47×0.55)
F	Rear seat crossmember reinforcement	Hole ϕ5 (0.20)

Description

INFOID:0000000003858159

- All dimensions indicated in the figures are actual.
- When using a tracking gauge, adjust both pointers to equal length. Then check the pointers and gauge itself to make sure there is no free play.
- When a measuring tape is used, check to be sure there is no elongation, twisting or bending.
- Measurements should be taken at the center of the mounting holes.
- An asterisk (*) following the value at the measuring point indicates that the measuring point on the other side is symmetrically the same value.
- The coordinates of the measurement points are the distances measured from the standard line of ″X″, ″Y″ and ″Z″.
- ″Z″: Imaginary base line [200 mm (7.87 in) below datum line (″0Z″ at design plan)]



JSKIA0073GB

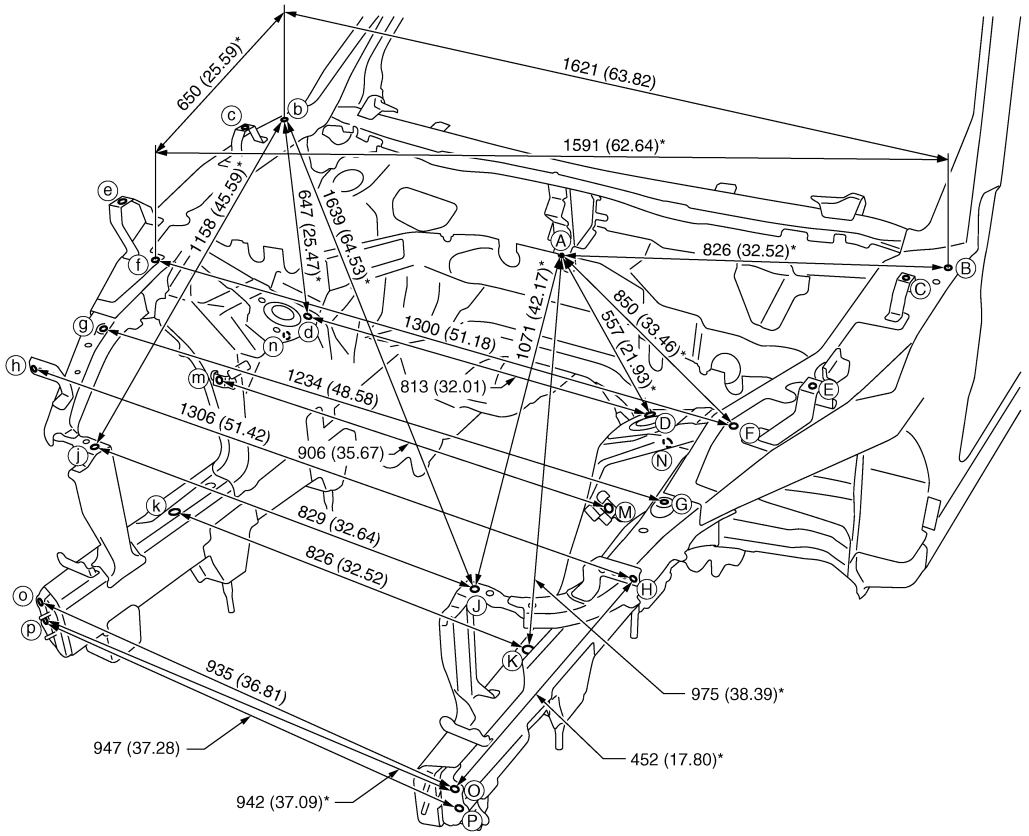
1. Vehicle center
2. Front axle center
3. Imaginary base line

Engine Compartment

INFOID:0000000003858160

Measurement

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



JSKIA0661GB

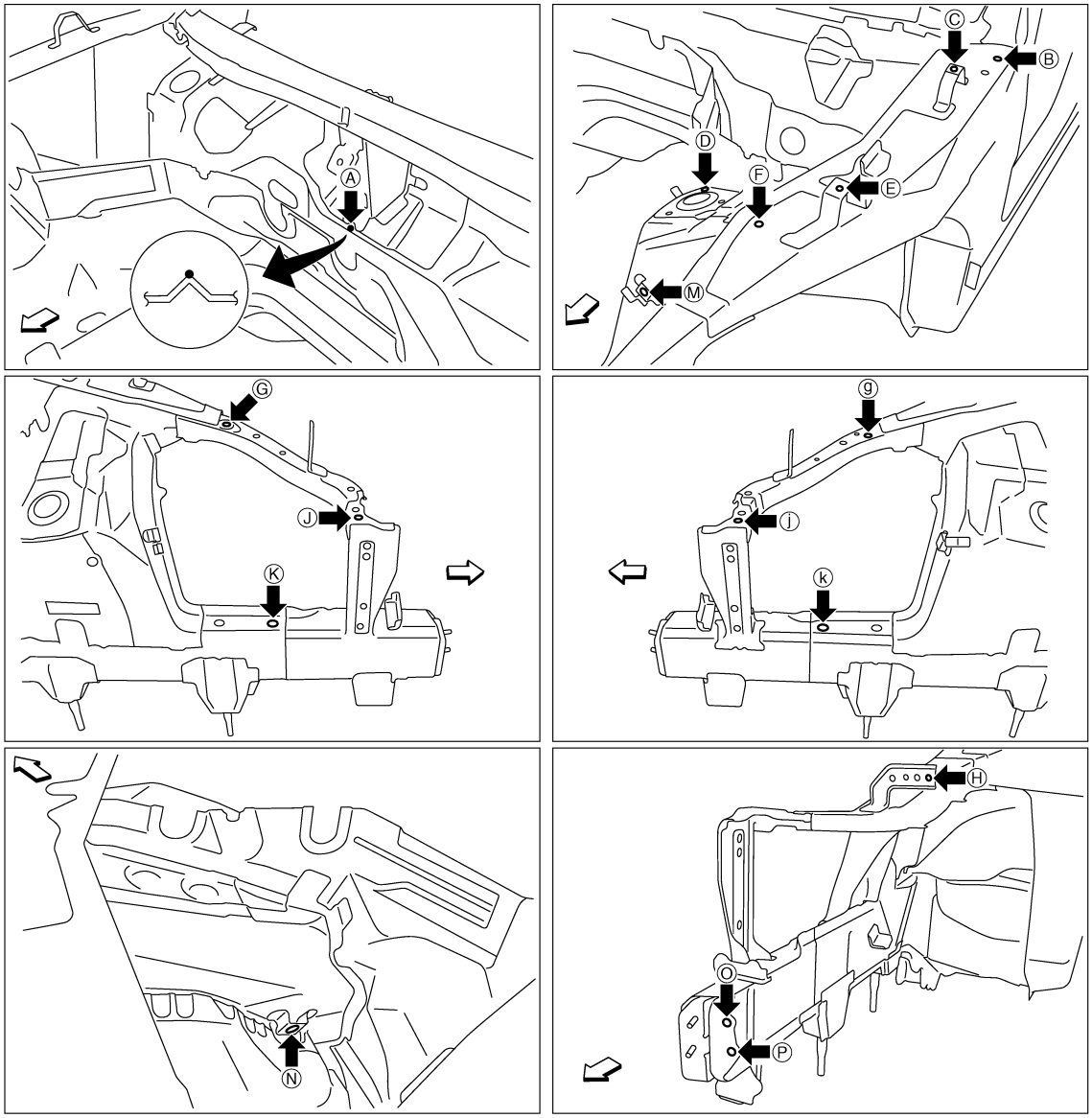
Unit: mm (in)

«The others»

Unit: mm (in)

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
A - C	806 (31.73)*		B - C	178 (7.01)*		B - e	1682 (66.22)*		b - G	1651 (65.00)	
A - E	930 (36.61)*		B - c	1601 (63.03)*		B - G	849 (33.43)		C - c	1561 (61.46)	
A - G	961 (37.83)		B - d	1318 (51.89)*		b - g	860 (33.86)		E - e	1533 (60.35)	
A - g	966 (38.03)		B - E	587 (23.11)*		B - g	1653 (65.08)		N - n	906 (35.67)	

Measurement Points



JSKIA0662ZZ

⇦: Vehicle front

Unit: mm (in)

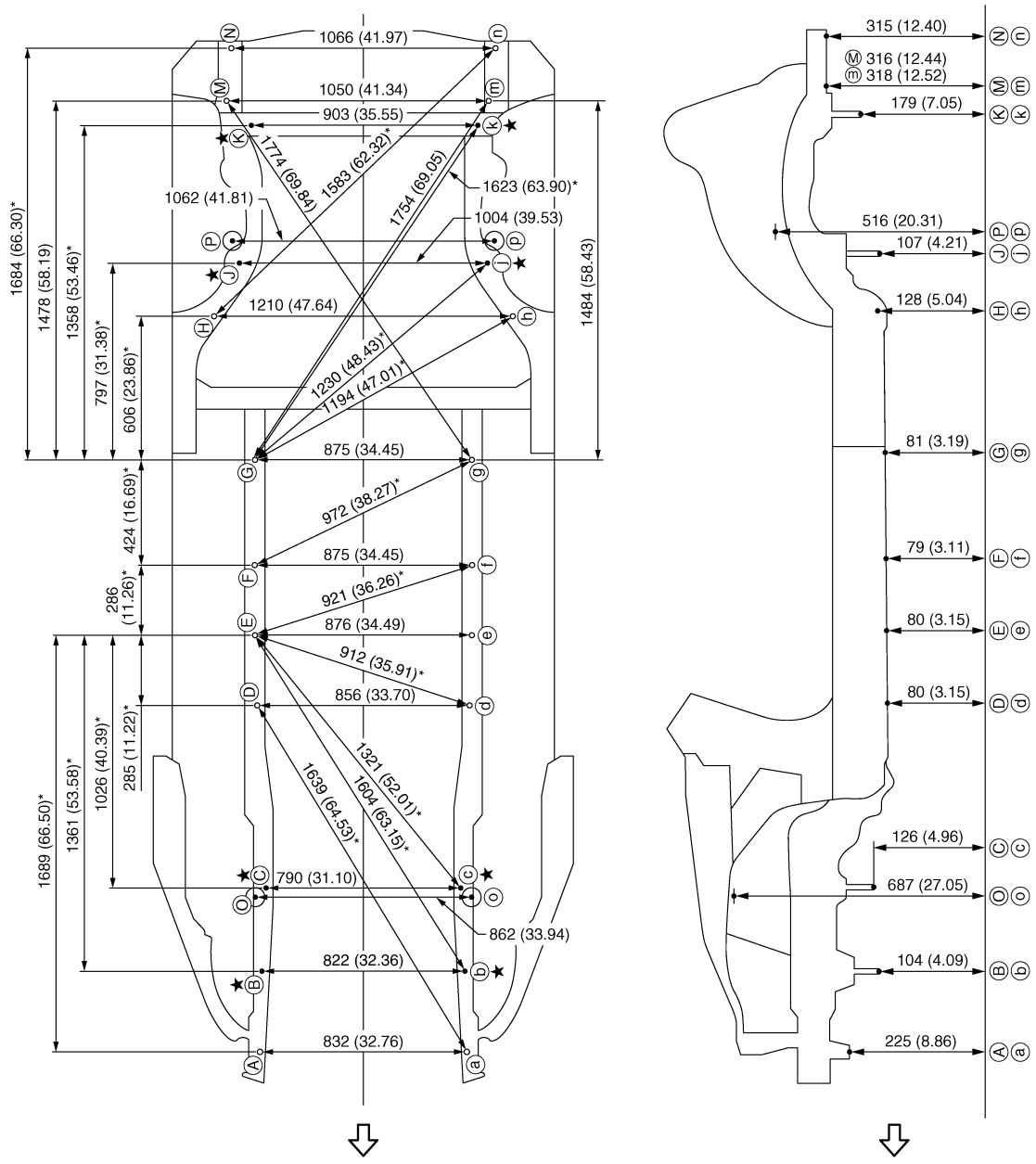
Point	Material	Point	Material
A	Upper dash positioning mark of center positioning mark	G, g	Radiator core support hole center ϕ7 (0.28)
B, b	Hood hinge installing hole center ϕ9 (0.35)	J, j	Radiator core support stay hole center ϕ12 (0.47)
C, c, E, e, H, h	Front fender installing hole center ϕ7 (0.28)	K, k	Front side member hole center ϕ10 (0.39)
D, d	Front strut installing hole center ϕ11 (0.43)	M, m, N, n	Nut holder hole center ϕ16 (0.63)
F, f	Hoodledge reinforcement hole center ϕ12 (0.47)	O, o, P, p	Front bumper reinforcement installing hole center ϕ11 (0.43)

Underbody

INFOID:0000000003858161

Measurement

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



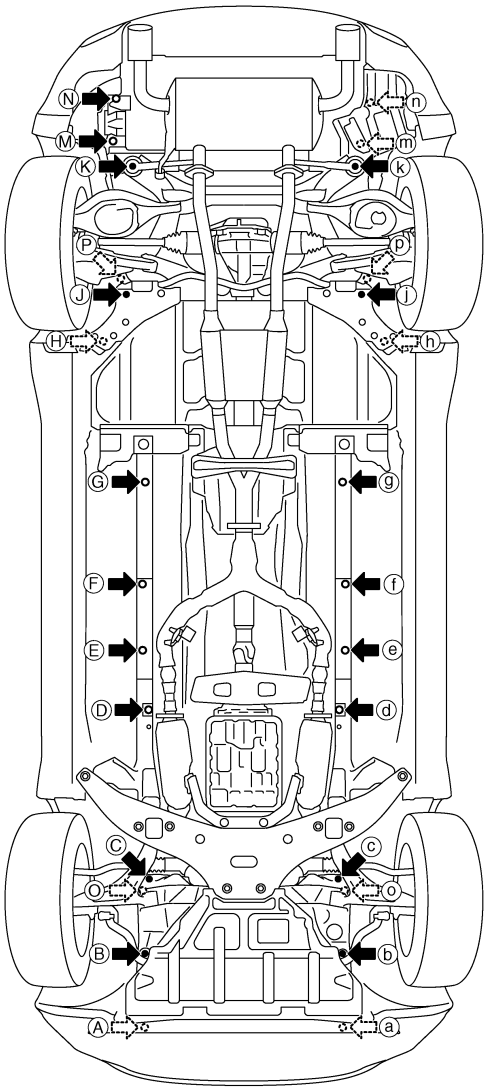
JSKIA0663GB

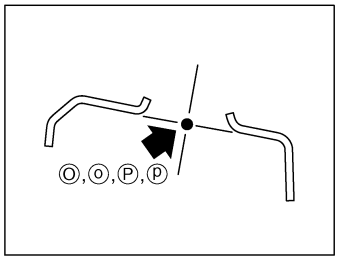
Unit: mm (in)

⇦: Vehicle front

★: Bolt head

Measurement Points





JSKIA0664ZZ

⇦: Vehicle front

Unit: mm (in)

Points	Coordinates			Remarks	Points	Coordinates			Remarks
	X	Y	Z			X	Y	Z	
A, a	±415.8 (±16.370)	−583.0 (−22.953)	224.6 (8.843)	Hole ϕ13 (0.51)	J, j	±502.1 (±19.768)	2603.8 (102.512)	106.9 (4.209)	Bolt head
B, b	±411.0 (±16.181)	−261.0 (−10.276)	104.2 (4.102)	Bolt head	K, k	±451.5 (±17.776)	3163.9 (124.563)	179.1 (7.051)	Bolt head
C, c	±395.0 (±15.551)	76.0 (2.992)	126.3 (4.972)	Bolt head	M	550.0 (21.654)	3264.6 (128.527)	316.4 (12.457)	Hole ϕ8 (0.31)
D, d	±428.0 (±16.850)	815.0 (32.087)	80.0 (3.150)	Hole 16×18 (0.63×0.71)	m	−500.0 (−19.685)	3273.3 (128.870)	318.0 (12.520)	Hole ϕ8 (0.31)
E, e	±438.0 (±17.244)	1100.0 (43.307)	80.2 (3.157)	Hole ϕ16 (0.63)	N, n	±533.0 (±20.984)	3475.0 (136.811)	315.4 (12.417)	Hole ϕ16 (0.63)
F, f	±437.5 (±17.224)	1385.9 (54.563)	78.8 (3.102)	Hole ϕ14 (0.55)	O, o	±430.8 (±16.961)	39.2 (1.543)	686.6 (27.031)	Hole ϕ50 (1.97)

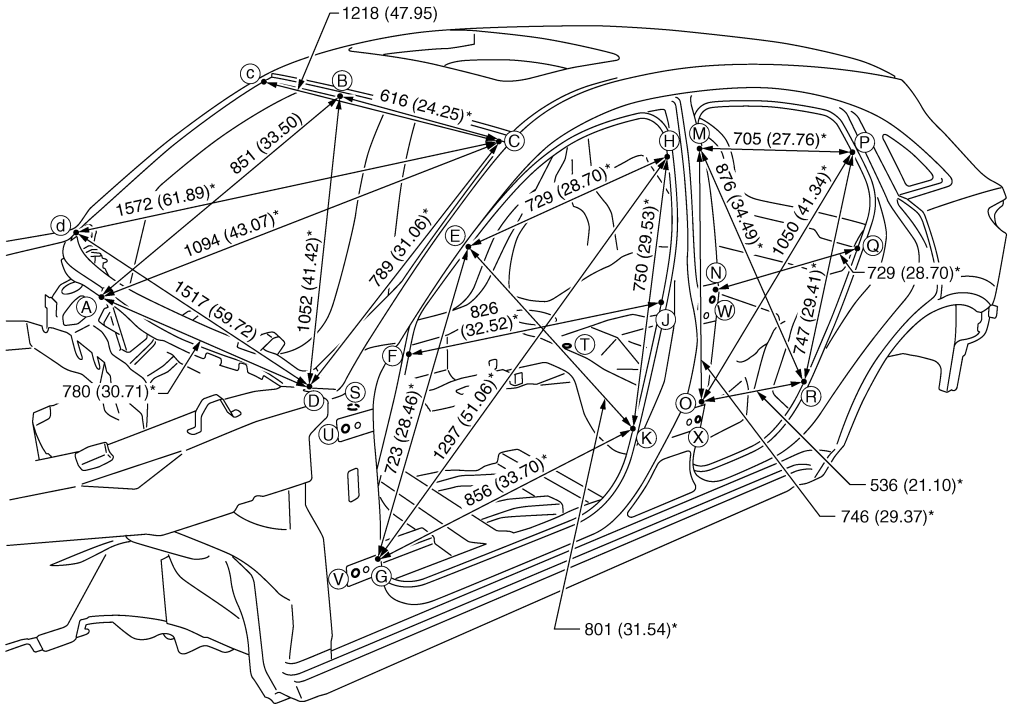
Points	Coordinates			Remarks	Points	Coordinates			Remarks
	X	Y	Z			X	Y	Z	
G, g	±437.5 (±17.224)	1810.0 (71.260)	81.2 (3.197)	Hole ϕ16 (0.63)	P, p	±531.2 (±20.913)	2692.7 (106.012)	515.6 (20.299)	Hole ϕ64 (2.52)
H, h	±604.9 (±23.815)	2390.5 (94.114)	128.3 (5.051)	Hole ϕ13 (0.51)					

Passenger Compartment

INFOID:0000000003858163

Measurement

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



JSKIA0665GB

Unit: mm (in)

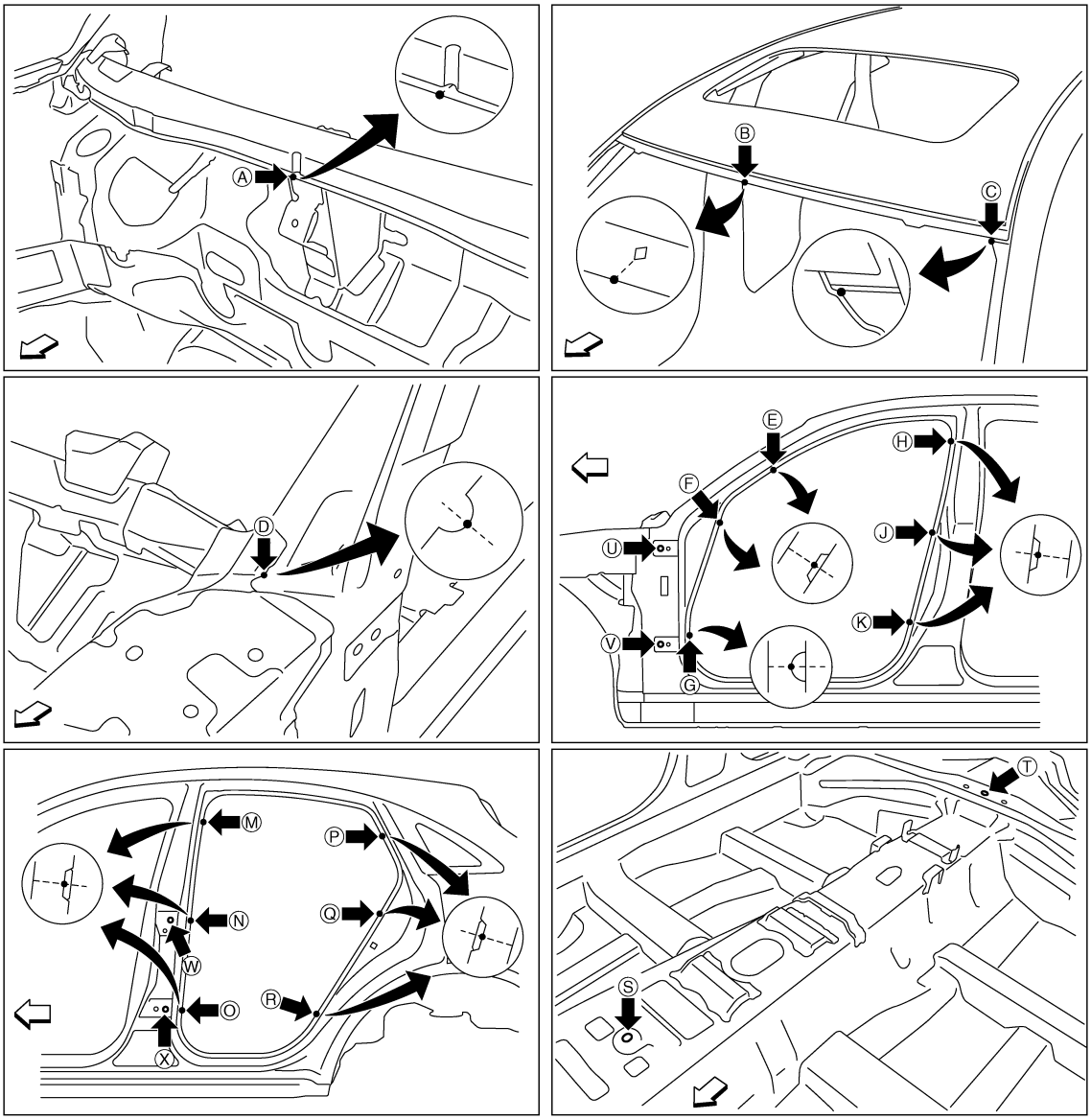
«The others»

Unit: mm (in)

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
E - e	1438 (56.61)		J - j	1540 (60.63)		P - p	1363 (53.66)		T - N	903 (35.55)*	
E - g	1663 (65.47)*		K - k	1553 (61.14)		P - r	1646 (64.80)*		T - O	814 (32.05)*	
E - h	1564 (61.57)*		M - m	1337 (52.64)		Q - q	1524 (60.00)		T - P	1161 (45.71)*	
E - k	1696 (66.77)*		M - o	1623 (63.90)*		R - r	1579 (62.17)		T - Q	1042 (41.02)*	
F - f	1536 (60.47)		M - p	1523 (59.96)*		S - E	1010 (39.76)*		T - R	848 (33.39)*	
F - j	1746 (68.74)*		M - r	1697 (66.81)*		S - F	907 (35.71)*		U - W	1158 (45.59)*	
G - g	1560 (61.42)		N - n	1541 (60.67)		S - G	797 (31.38)*		U - X	1151 (45.31)*	
G - h	1939 (76.34)*		N - q	1697 (66.81)*		S - H	1373 (54.06)*		V - W	1230 (48.43)*	

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
G - k	1777 (69.96)*		O - o	1554 (61.18)		S - J	1187 (46.73)*		V - X	1119 (44.06)*	
H - h	1331 (52.40)		O - p	1795 (70.67)*		S - K	1049 (41.30)*				
H - k	1622 (63.86)*		O - r	1656 (65.20)*		T - M	1056 (41.57)*				

Measurement Points



JSKIA0666ZZ

⇦: Vehicle front

Unit: mm (in)

Point	Material	Point	Material
A	Upper dash crossmember flange end of center positioning mark	P, p, Q, q, R, r	Rear fender indent
B	Roof flange end of center positioning mark	S	Trans control reinforcement hole center of center positioning mark 12×14 (0.47×0.55)

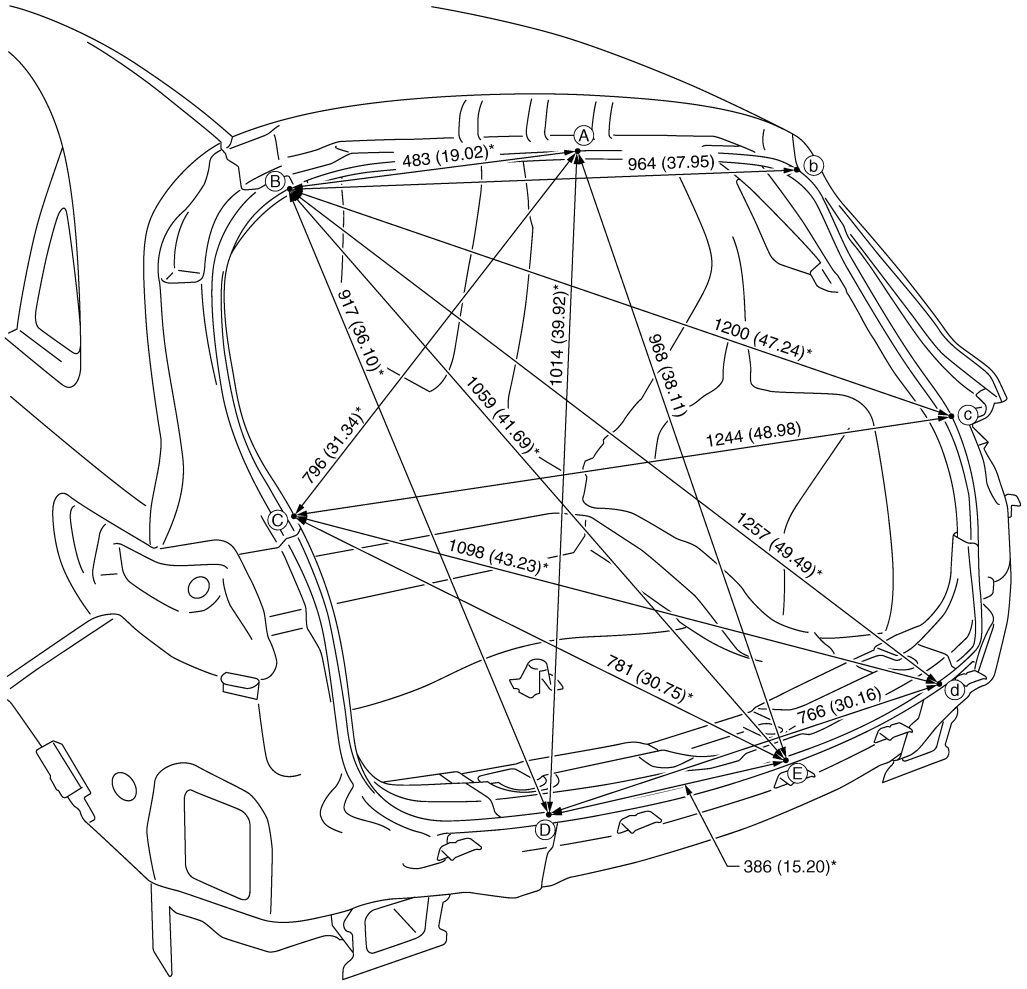
Point	Material	Point	Material
C, c	Front pillar joggle	T	Rear seat crossmember reinforcement hole center of center positioning mark ϕ5 (0.20)
D, d, E, e, F, f, G, g	Front pillar indent	U, u, V, v, W, w, X, x	Door hinge installing hole center U, u, V, v, X, x: ϕ12 (0.47) W, w: ϕ9 (0.35)
H, h, J, j, K, k, M, m, N, n, O, o	Center pillar indent		

Rear Body

INFOID:0000000003858164

Measurement

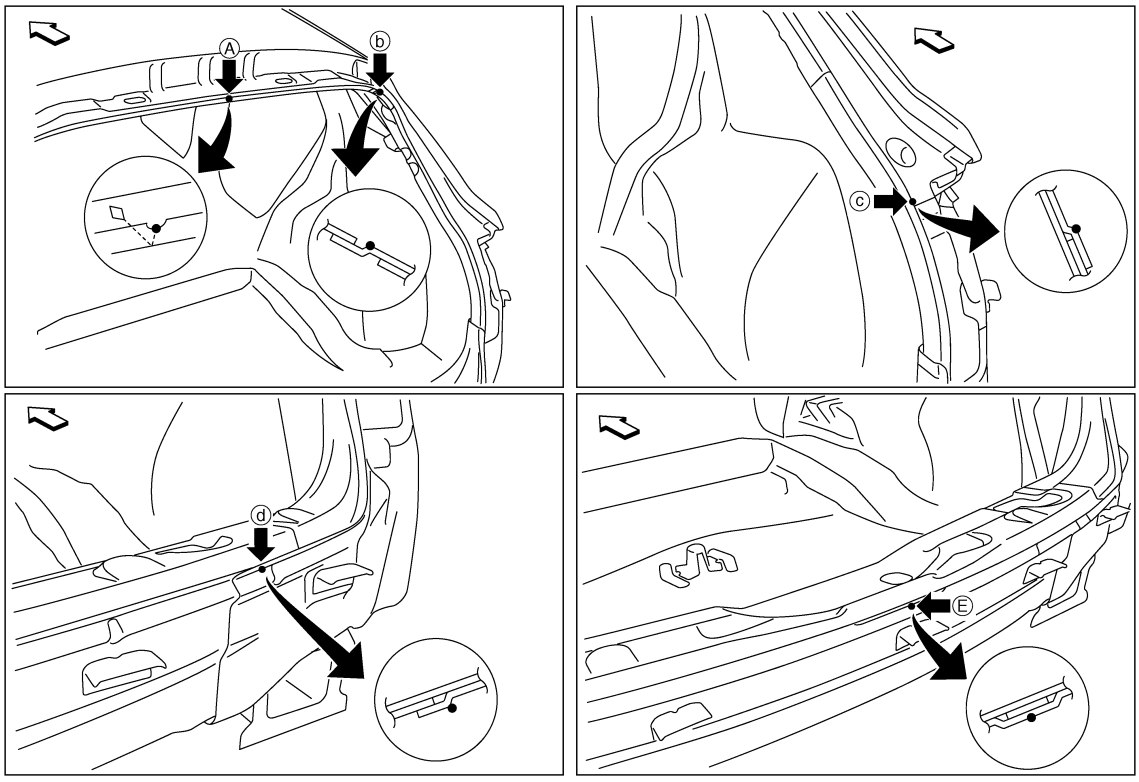
Dimensions marked with "*" indicate symmetrically identical dimensions on both the right and left hand of the vehicle.



JSKIA0667GB

Unit: mm (in)

Measurement Points



JSKIA0668ZZ

⇦: Vehicle front

Point	Material	Point	Material
A	Roof indent of center positioning mark	D, d	Lower back pillar main joggle
B, b, C, c	Upper back pillar main joggle	E	Upper rear panel flange end of center positioning mark

REPAIRING HIGH STRENGTH STEEL

High Strength Steel (HSS)

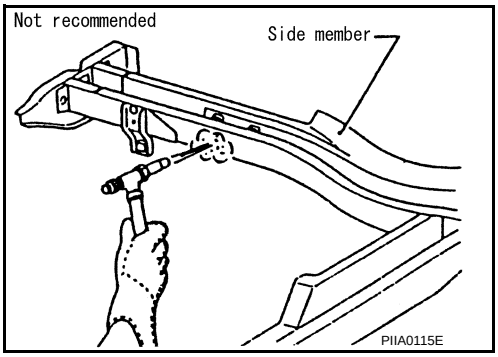
INFOID:0000000003858165

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:

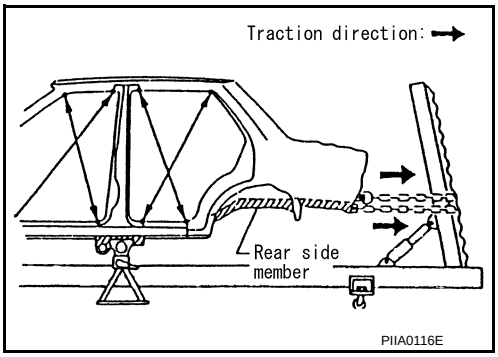
Tensile strength	Major applicable parts
370 - 590 MPa	• Front strut housing • Hoodledge reinforcement • Upper front hoodledge • Lower dash • Lower dash crossmember assembly • Front roof rail • Inner side roof rail • Inner center pillar • Inner sill • Upper & lower outer rear wheelhouse extension • Center front floor (Component part) • Front floor (Component part) • Front & rear side member assembly • Front side member closing plate assembly • Front side member outrigger assembly • Rear seat crossmember • Other reinforcements
780 - 1350 MPa	• Center pillar reinforcement (Component part) • Inner center pillar (Component part) • Outer side roof rail reinforcement (Component part)

Read the following precautions when repairing HSS:

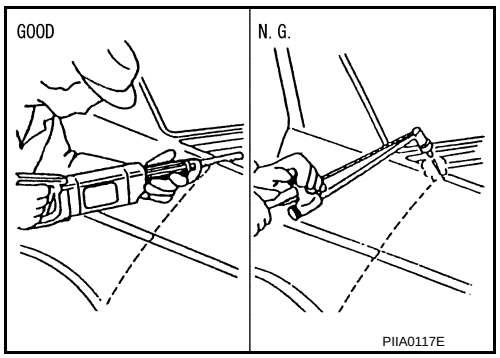
1. Additional points to consider
   - The repair of reinforcements (such as side members) by heating is not recommended since it may weaken the component. When heating is unavoidable, do not heat HSS parts above 550°C (1,022°F).
     Verify heating temperature with a thermometer.
     (Crayon-type and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



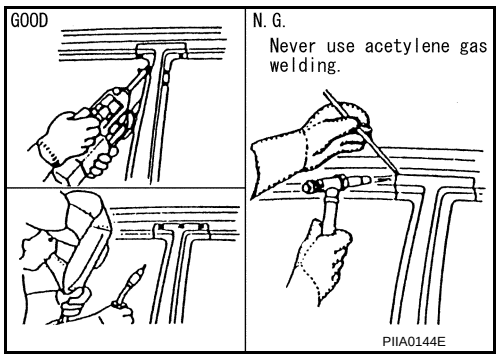
   - When straightening body panels, use caution in pulling any HSS panel. Because HSS is very strong, pulling may cause deformation in adjacent portions of the body. In this case, increase the number of measuring points, and carefully pull the HSS panel.



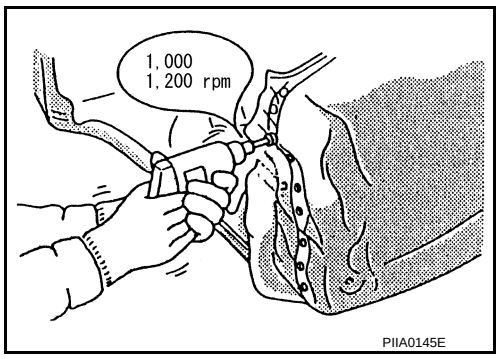
- When cutting HSS panels, avoid gas (torch) cutting if possible. Instead, use a saw to avoid weakening surrounding areas due to heat. If gas (torch) cutting is unavoidable, allow a minimum margin of 50 mm (1.97in).



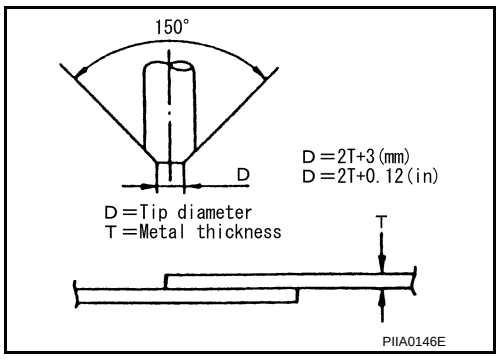
- When welding HSS panels, use spot welding whenever possible in order to minimize weakening surrounding areas due to heat.
  If spot welding is impossible, use MIG. welding. Do not use gas (torch) for welding because it is inferior in welding strength.



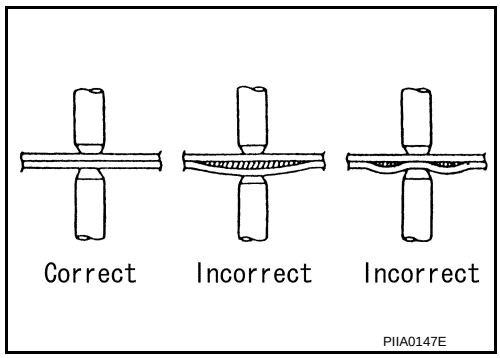
- The spot weld on HSS panels is harder than that of an ordinary steel panel.
  Therefore, when cutting spot welds on a HSS panel, use a low speed high torque drill (1,000 to 1,200 rpm) to increase drill bit durability and facilitate the operation.



2. Precautions in spot welding HSS
   This work should be performed under standard working conditions. Always note the following when spot welding HSS:
   - The electrode tip diameter must be sized properly according to the metal thickness.



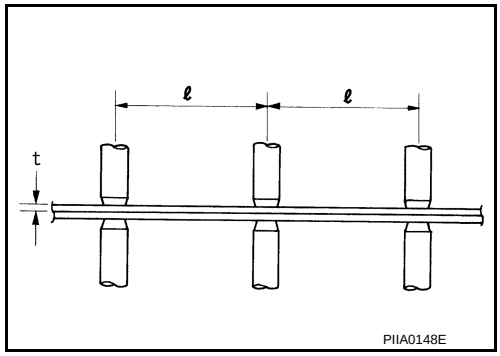
- The panel surfaces must fit flush to each other, leaving no gaps.



- Follow the specifications for the proper welding pitch.

Unit: mm (in)

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



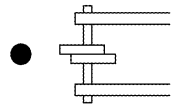
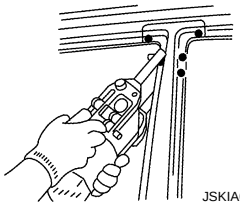
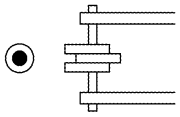
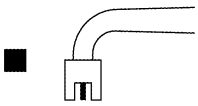
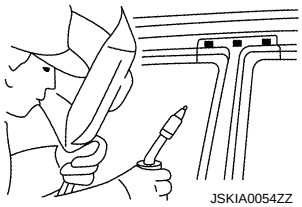
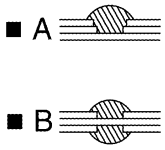
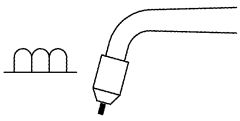
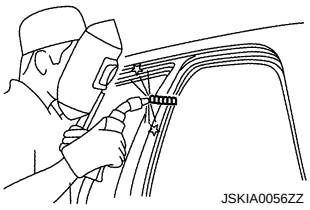
REPLACEMENT OPERATIONS

Description

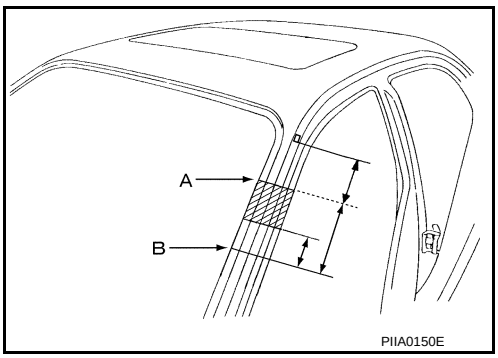
INFOID:0000000003858166

- 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.

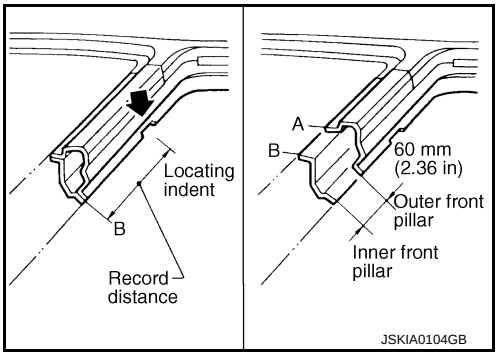
The symbols used in this section for welding operations are shown below.

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

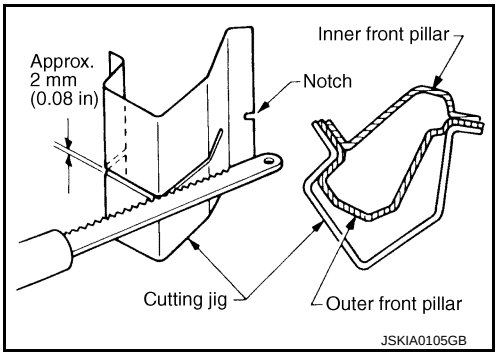
- Front pillar butt joint can be determined anywhere within shaded area as shown in the figure. The best location for the butt joint is at position A due to the construction of the vehicle. Refer to the front pillar section.



- 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.

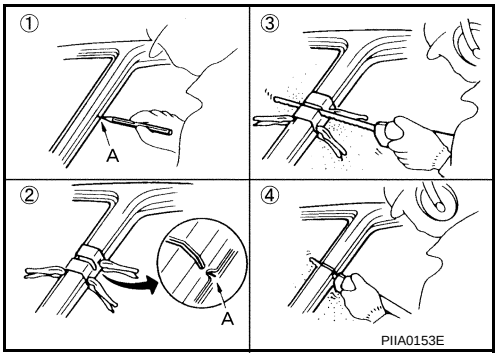


- Prepare a cutting jig to make outer pillar easier to cut. Also, this will permit service part to be accurately cut at joint position.



- 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.

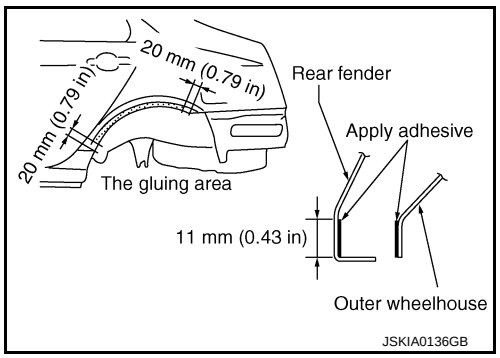
CAUTION:

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

Procedure of the hemming process

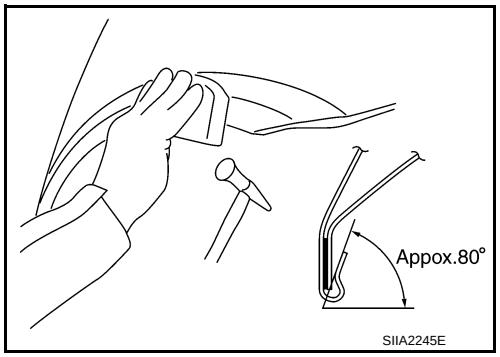
- Peel off old bonding material on the surface of outer wheelhouse and clean thoroughly.
- Peel off a primer coat in the specified area where new adhesive is to be applied on rear fender (the replacing part).
- Apply new adhesive to both specified areas of outer wheelhouse and rear fender.

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

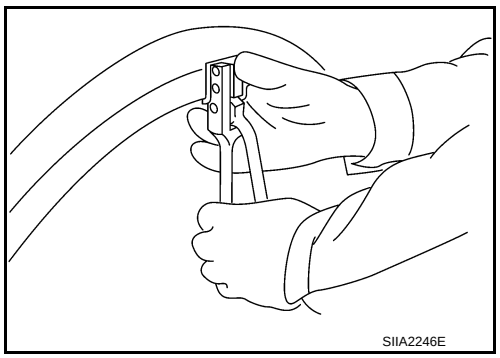


- Attach rear fender to the body of the car, and weld the required part except the hemming part.

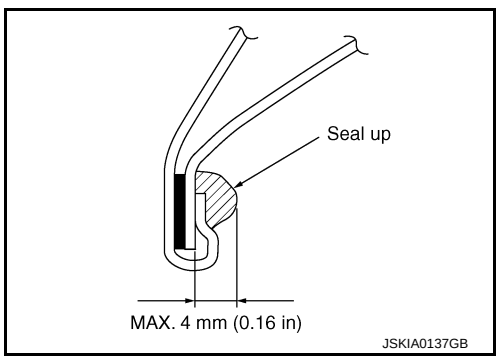
- Bend the welded part starting from the center of the wheel arch gradually with a hammer and a dolly. (Also hem the end of the flange.)
- Hemming with a hammer is conducted to an approximate angle of 80 degrees.



- 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.

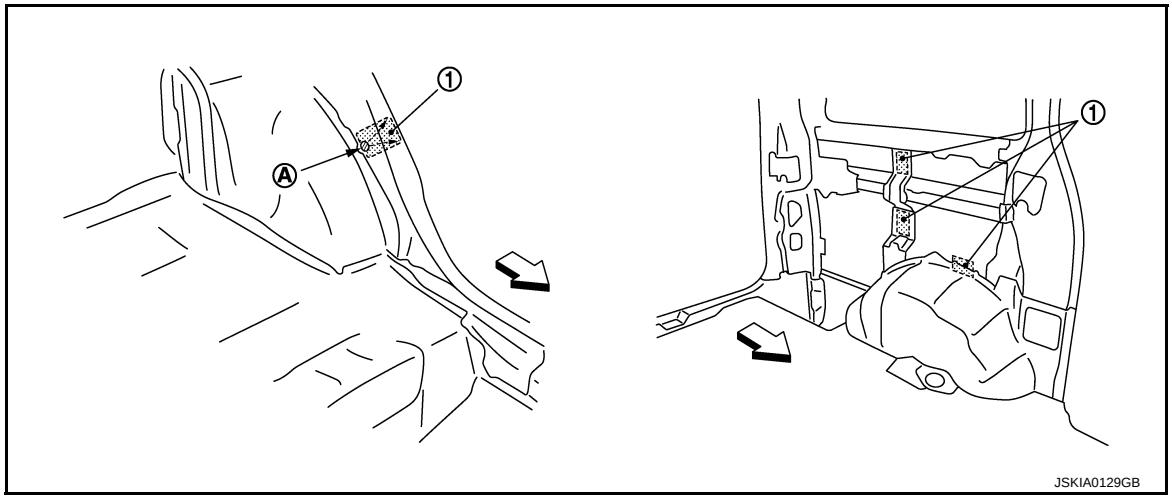
Urethane foam applications

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.

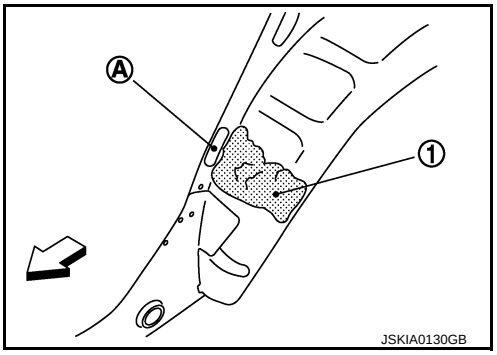
- Remove foam material remaining on vehicle side.
- Clean area in which foam was removed.
- Install service part.

- 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.



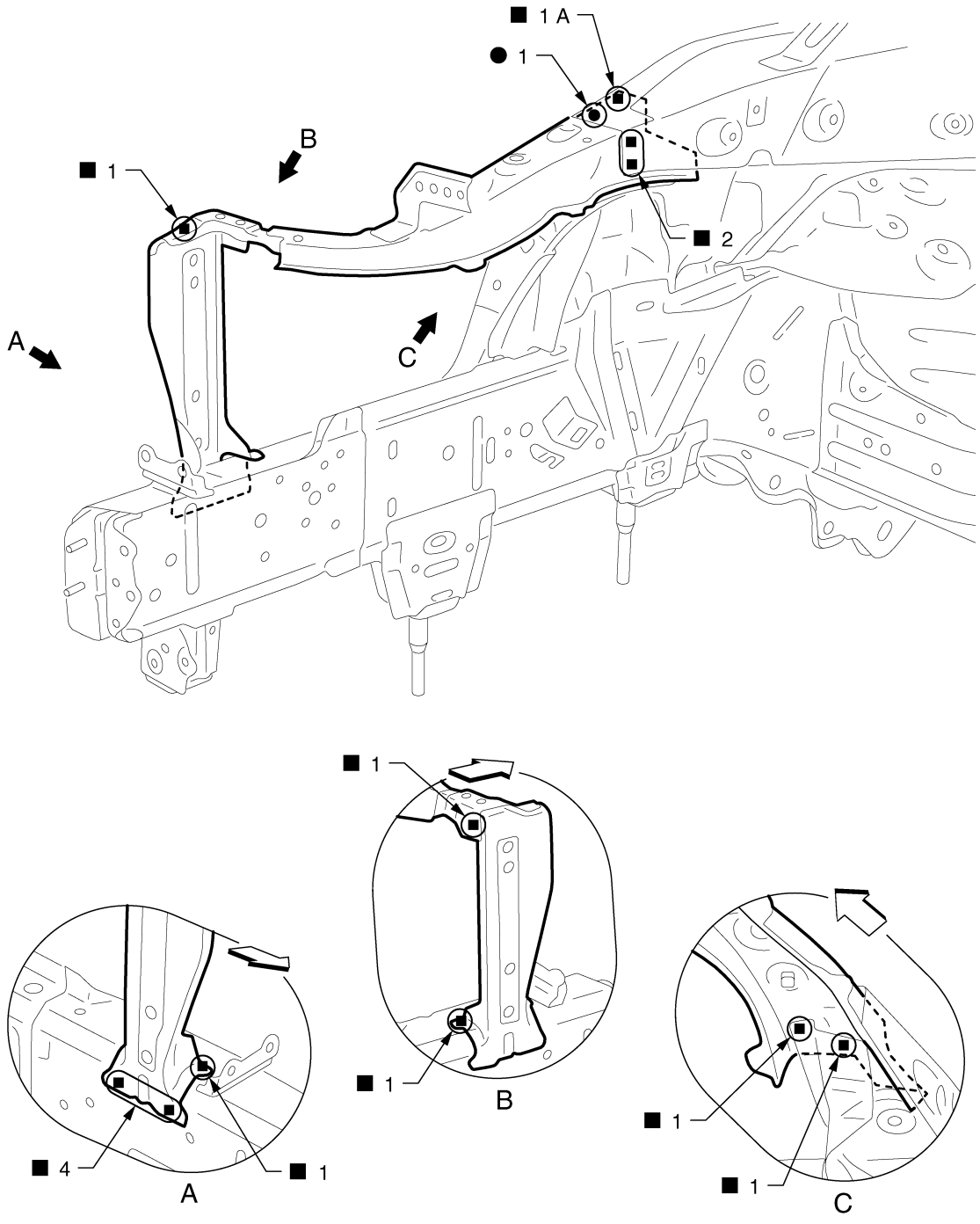
1. Urethane foam
A. Fill while avoiding flange area
⇦ : Vehicle front

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.

Radiator Core Support

INFOID:0000000003858167



⇦: Vehicle front

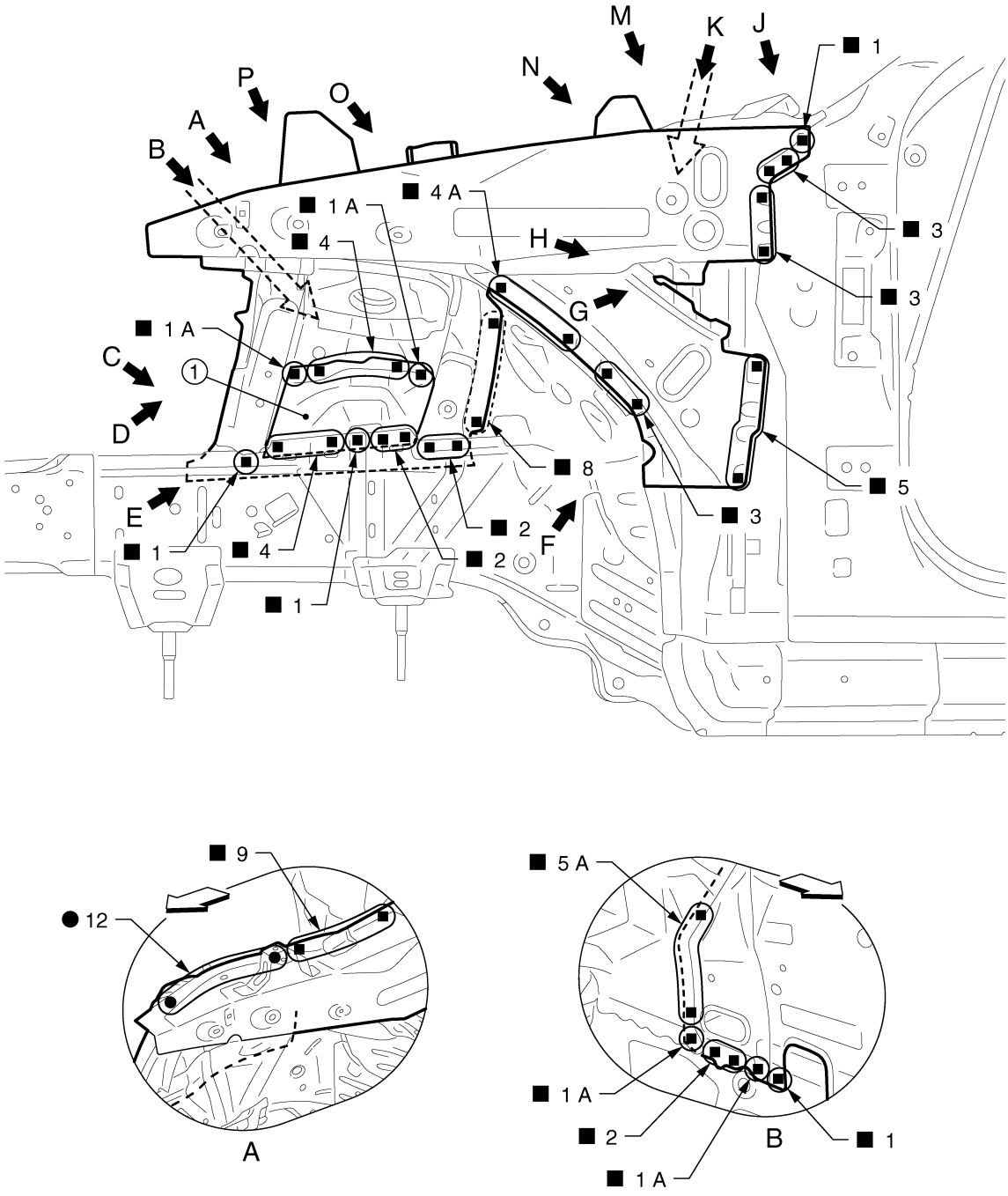
Replacement parts

- Side radiator core support assembly (LH)
- Front side member connector assembly (LH)

Hoodledge

INFOID:0000000003858168

Work after radiator core support is removed.
Remove the front side member center closing plate (reusable).

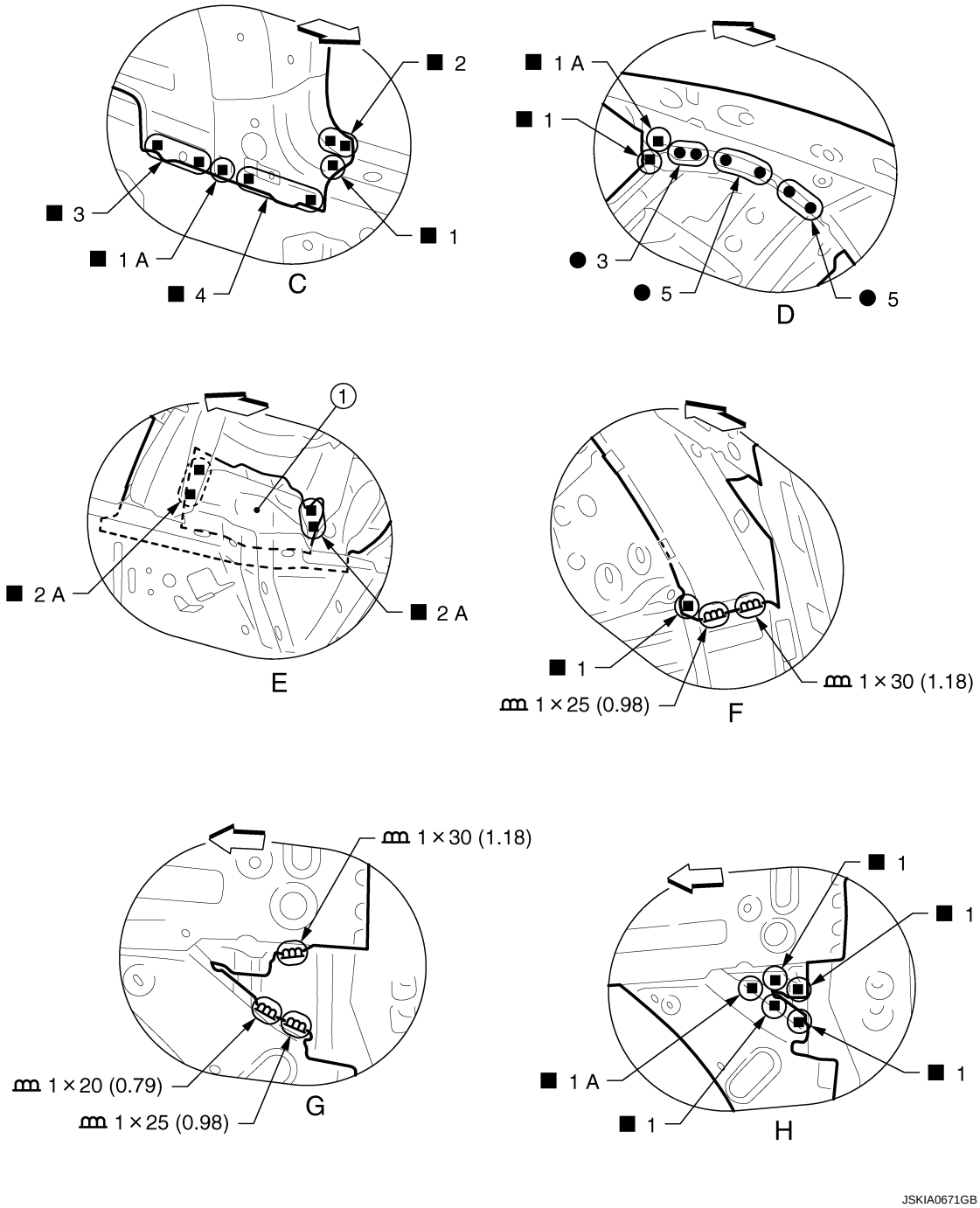


1. Front side member center closing plate

⇦: Vehicle front

Replacement parts

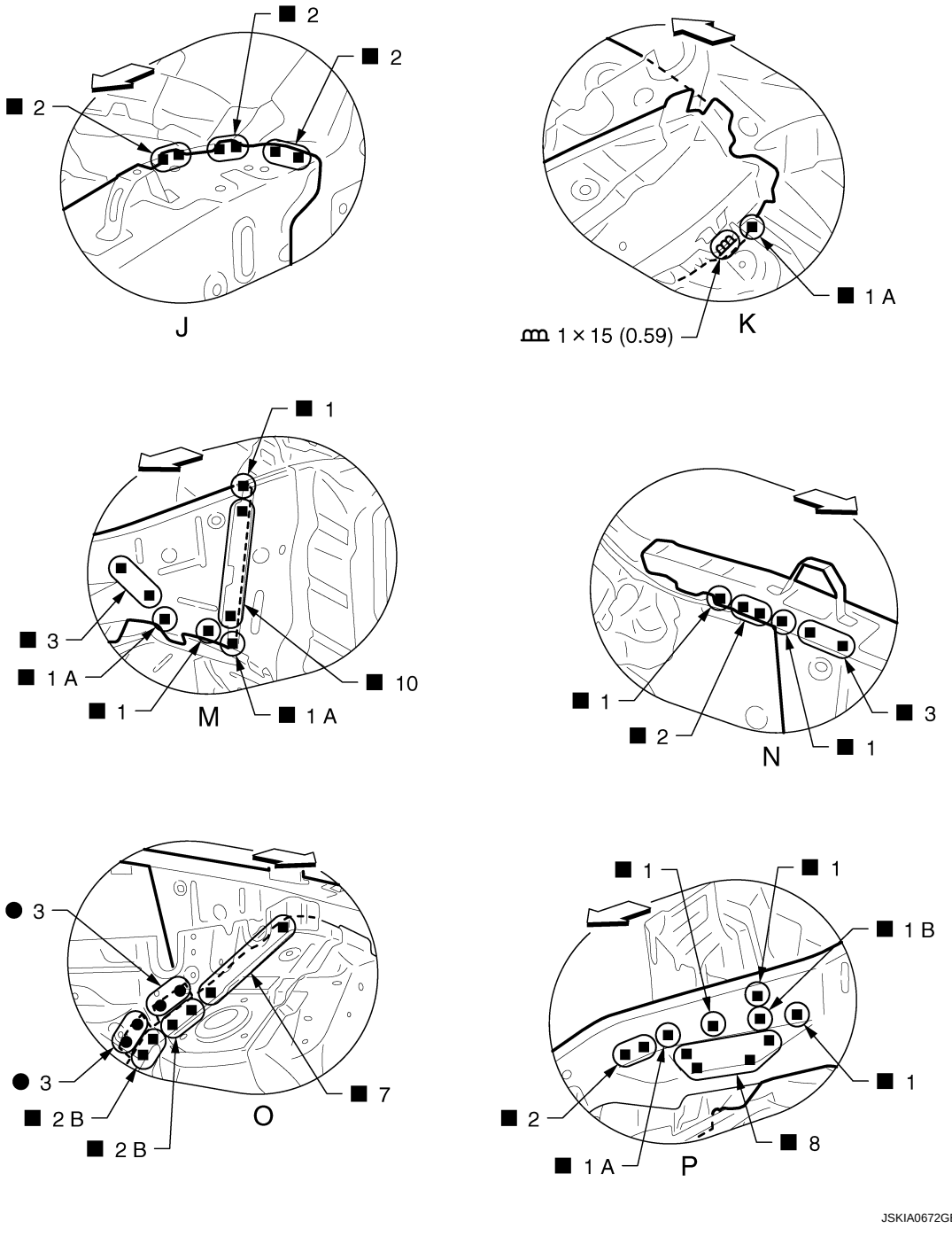
- Upper front hoodledge (LH)
- Hoodledge reinforcement (LH)
- Front strut housing (LH)



1. Front side member center closing plate

Unit: mm (in)

⇦: Vehicle front



JSKIA0672GB

Unit: mm (in)

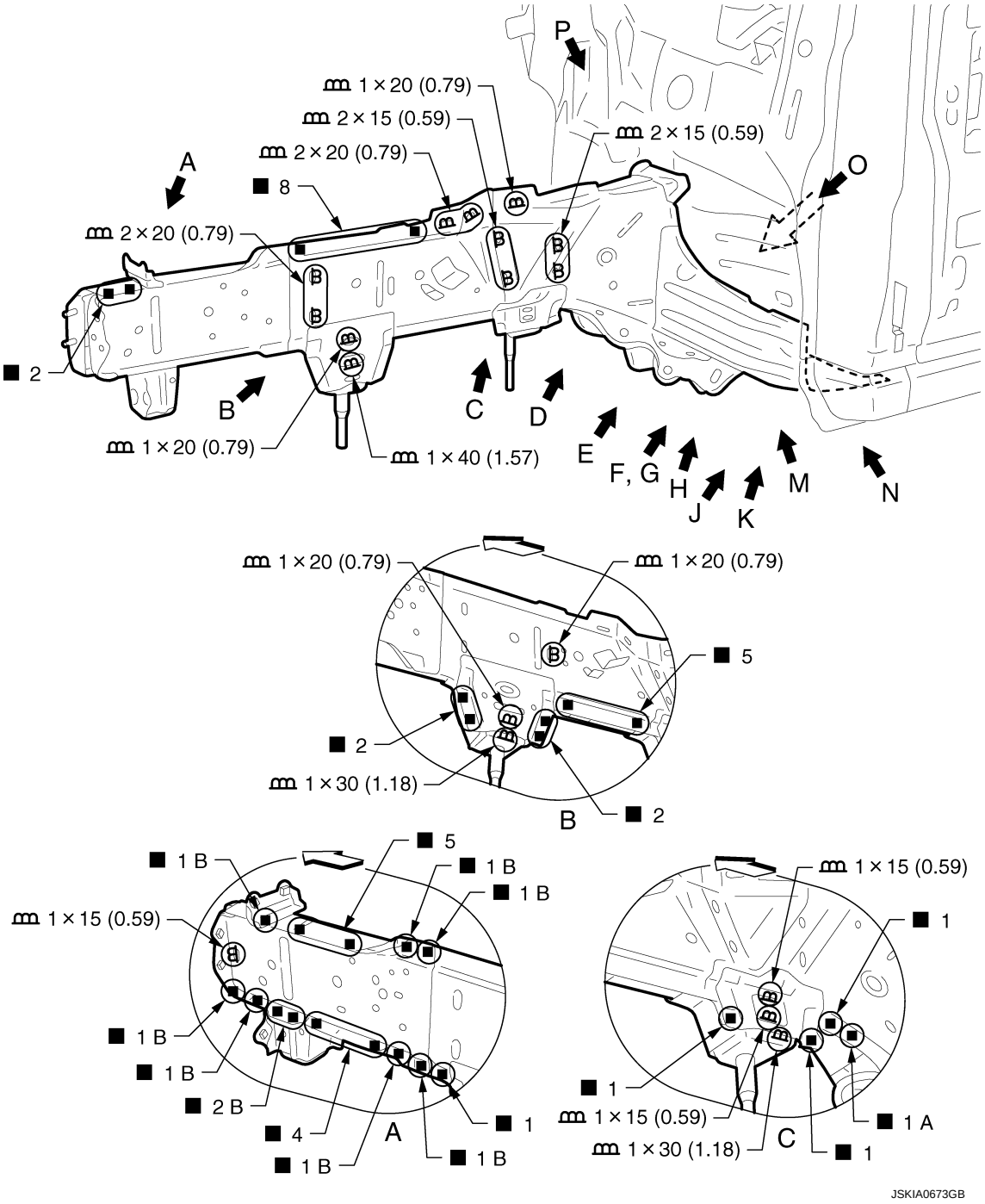
⇦: Vehicle front

View M and P: Before installing hoodledge reinforcement

Front Side Member

INFOID:0000000003858169

Work after radiator core support, hoodledge, and lower rear hoodledge are removed.
Assemble the hoodledge and check the fitting according to Body Alignment before replacing the front side member center closing plate.

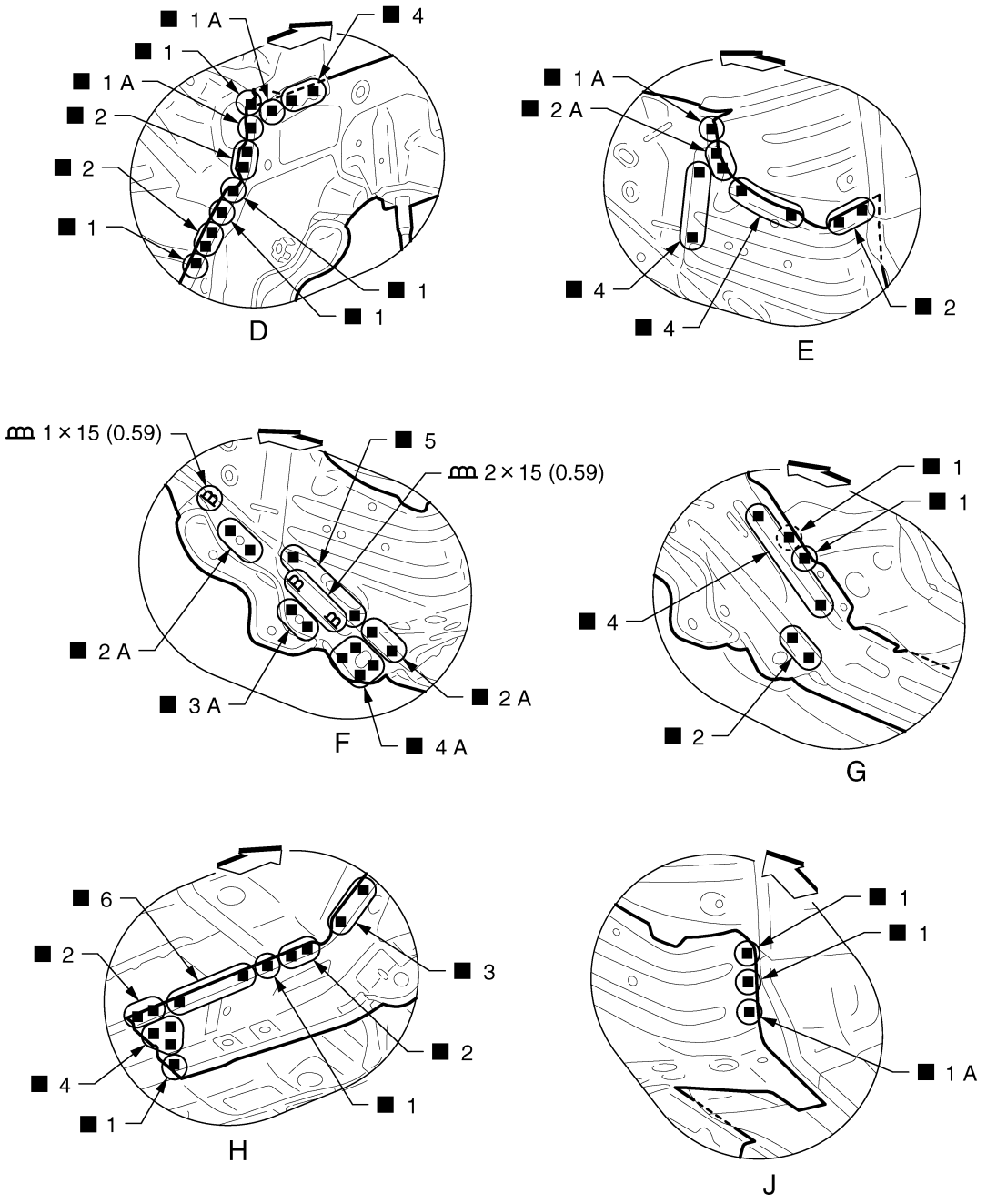


Unit: mm (in)

⇦: Vehicle front

Replacement parts

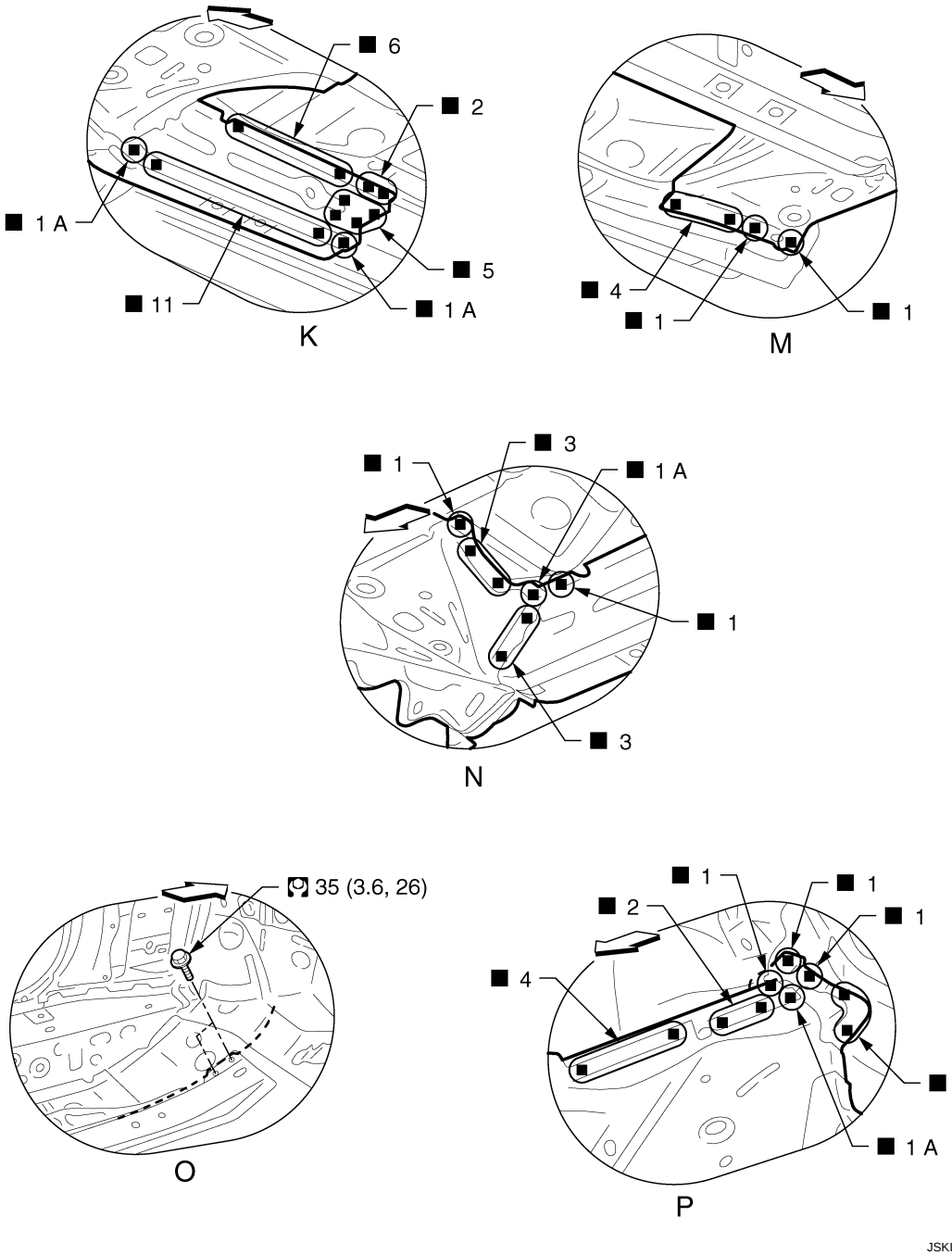
- Front side member assembly (LH)
- Front side member closing plate assembly (LH)
- Front side member outrigger assembly (LH)



Unit: mm (in)

⇦: Vehicle front

View G: Before installing front side member outrigger assembly



JSKIA0675GB

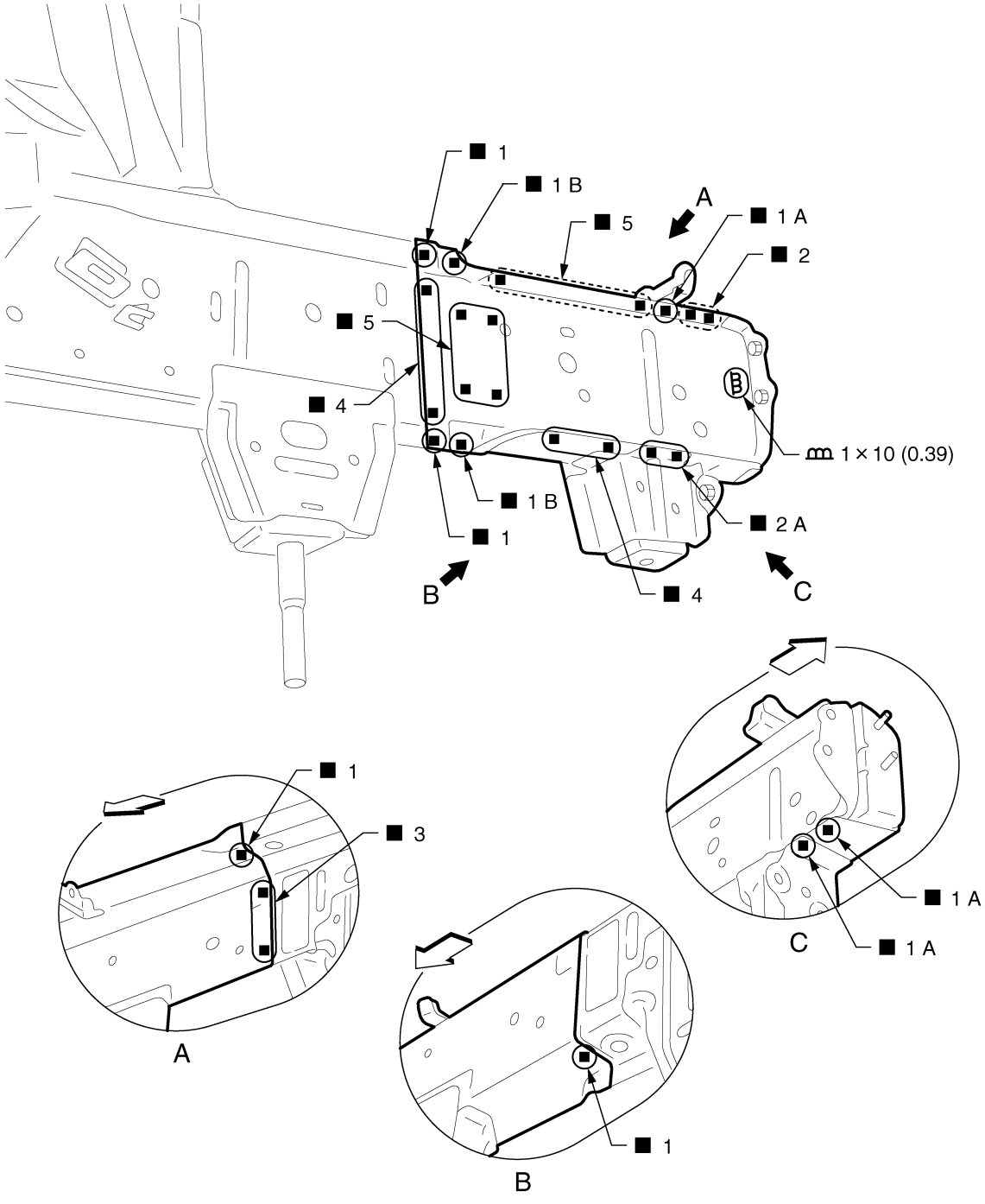
⇦: Vehicle front

Refer to GI-4, "Components" for symbols in the figure.

Front Side Member (Partial Replacement)

INFOID:0000000003858171

Work after radiator core support is removed.



JSKIA0676GB

Unit: mm (in)

⇦: Vehicle front

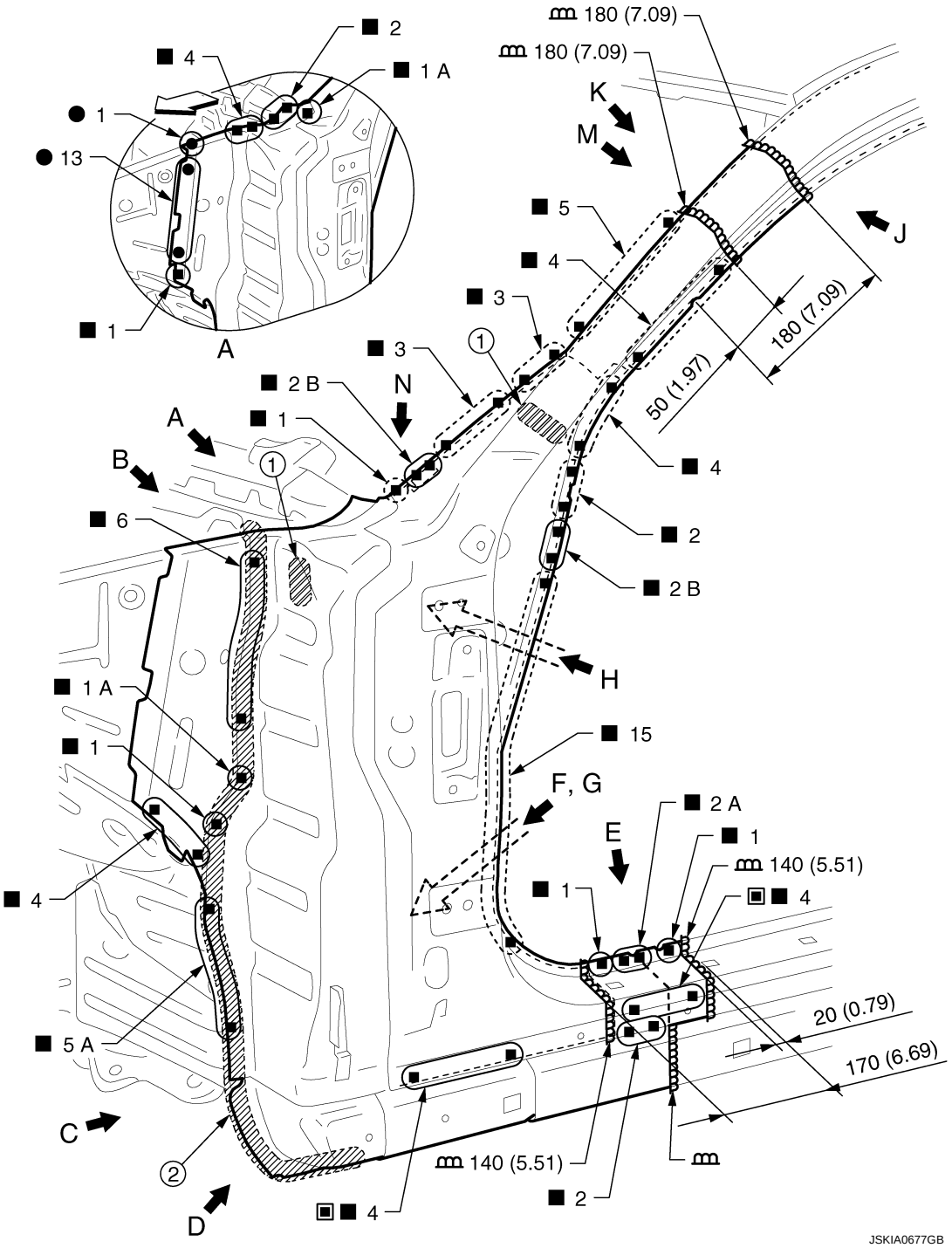
Replacement parts

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

Front Pillar

INFOID:0000000003858172

Work after hoodledge reinforcement is removed.



1. Urethane foam
2. Body sealing

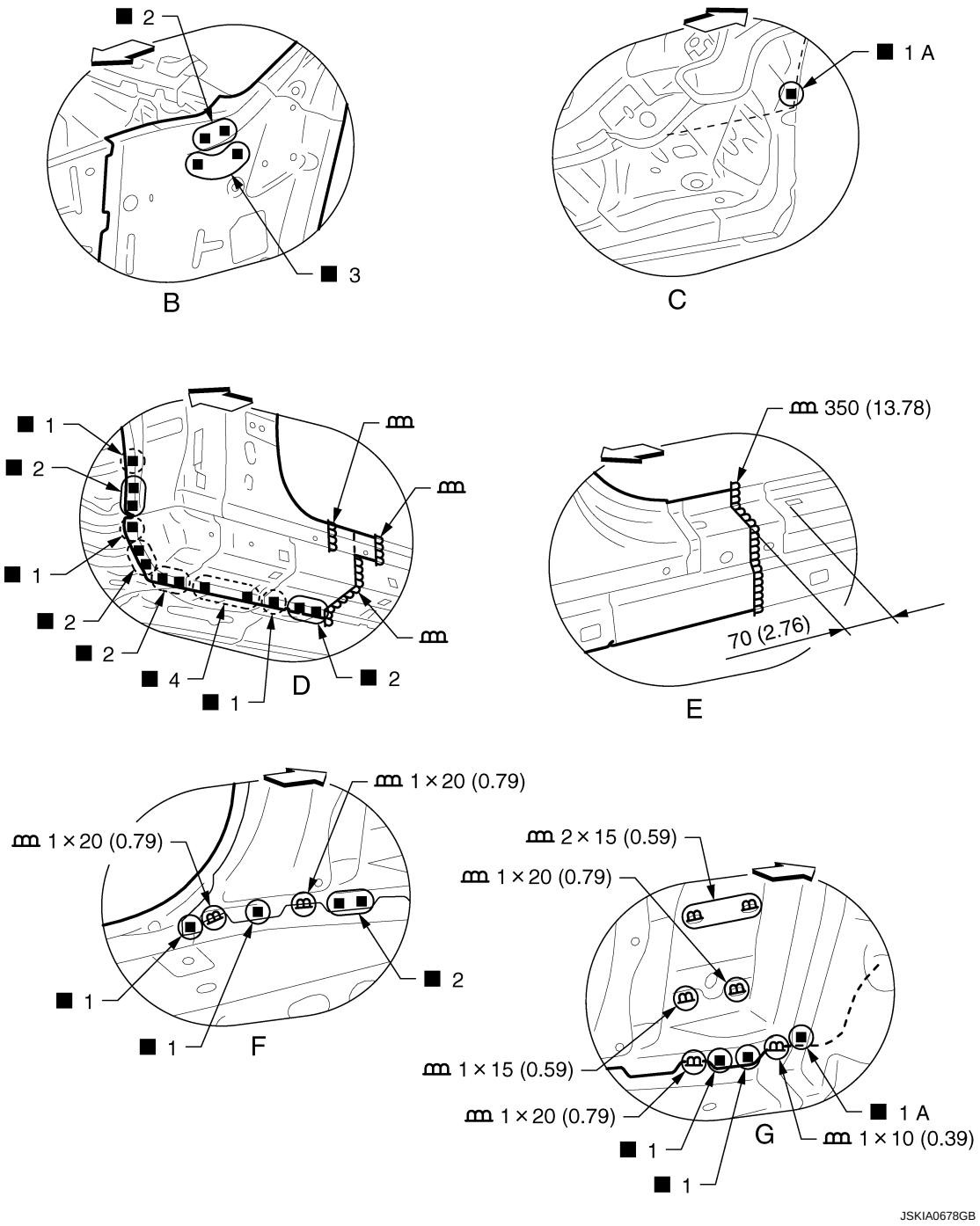
Unit: mm (in)

⇦: Vehicle front

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

Replacement parts

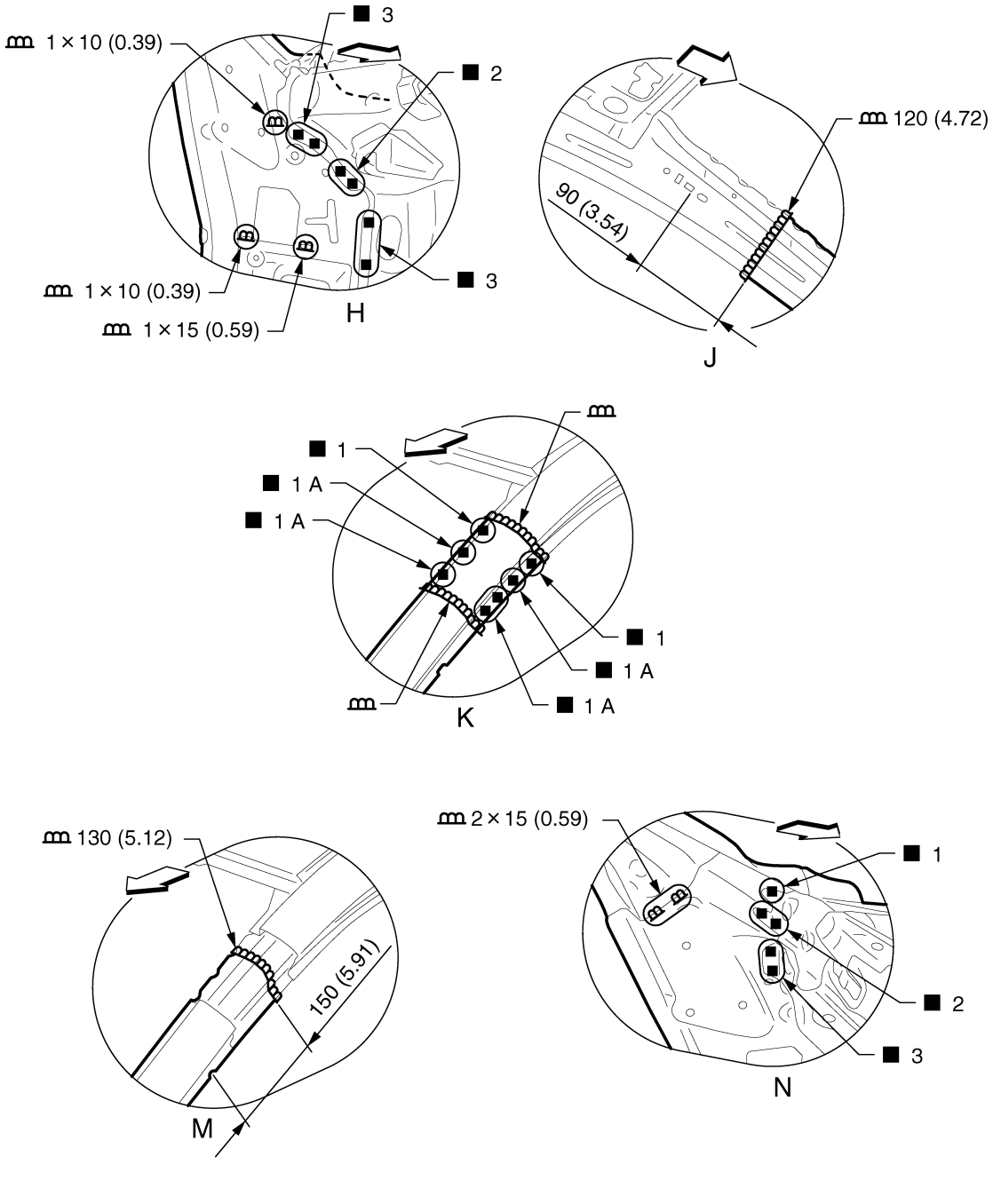
- Side body assembly (LH)
- Upper inner front pillar assembly (LH)
- Upper rear hoodledge (LH)



Unit: mm (in)

⇦: Vehicle front

View B: Before installing side body assembly
View E: Before installing outer front side body



JSKIA0679GB

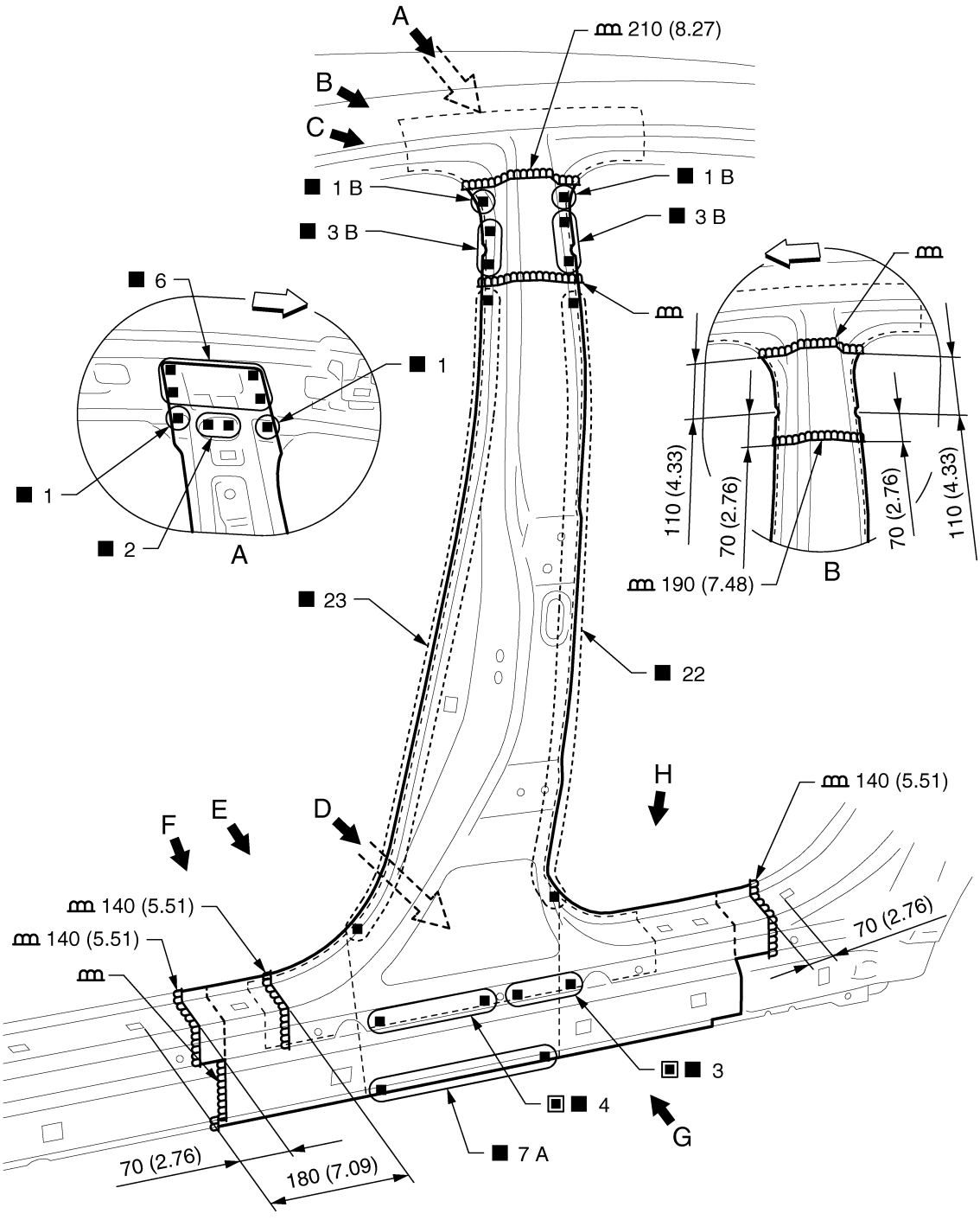
Unit: mm (in)

⇦: Vehicle front

View M: Before installing outer front side body

Center Pillar

INFOID:0000000003858174



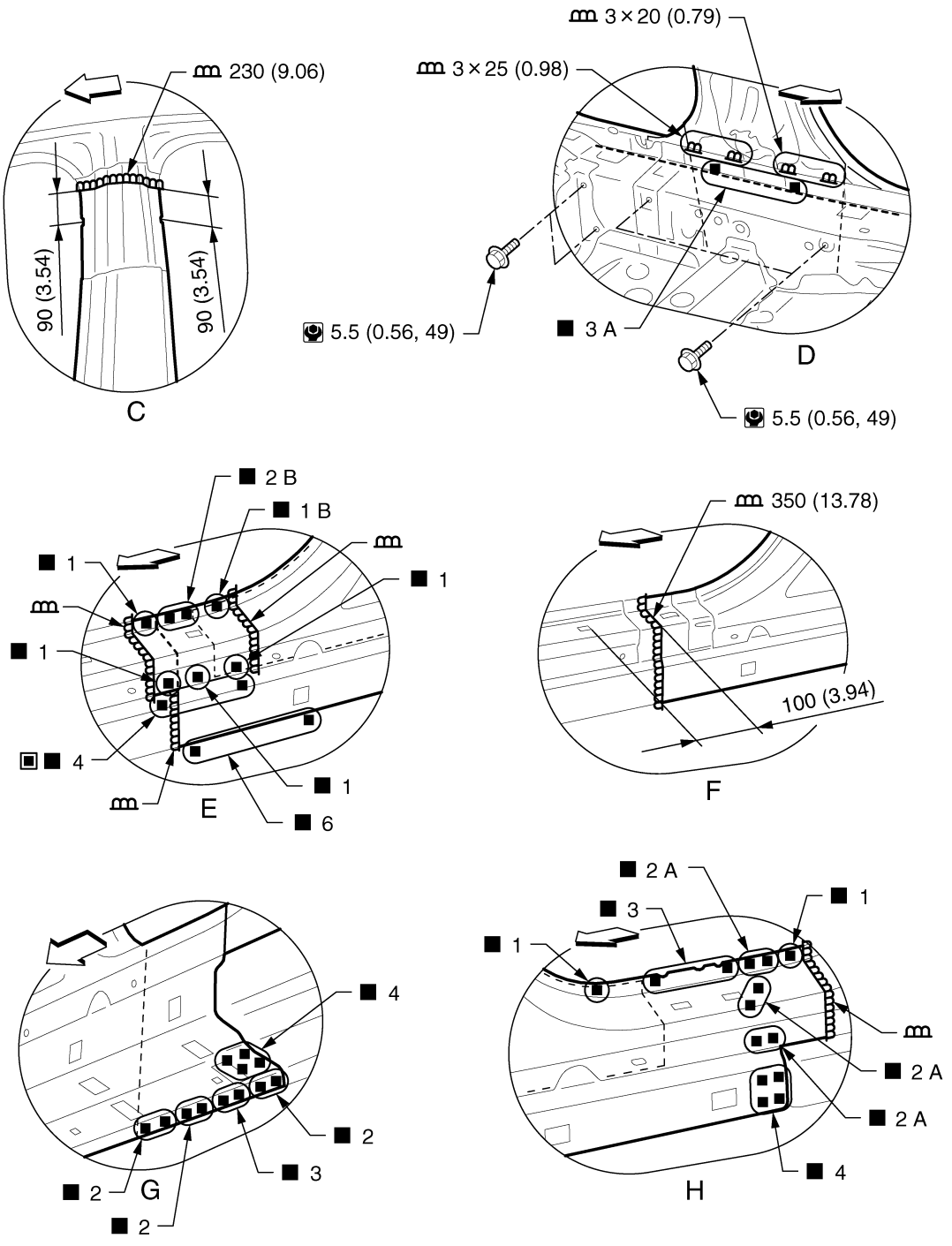
Unit: mm (in)

⇦: Vehicle front

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

Replacement parts

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



JSKIA0681GB

Unit: mm (in)

⇦: Vehicle front

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

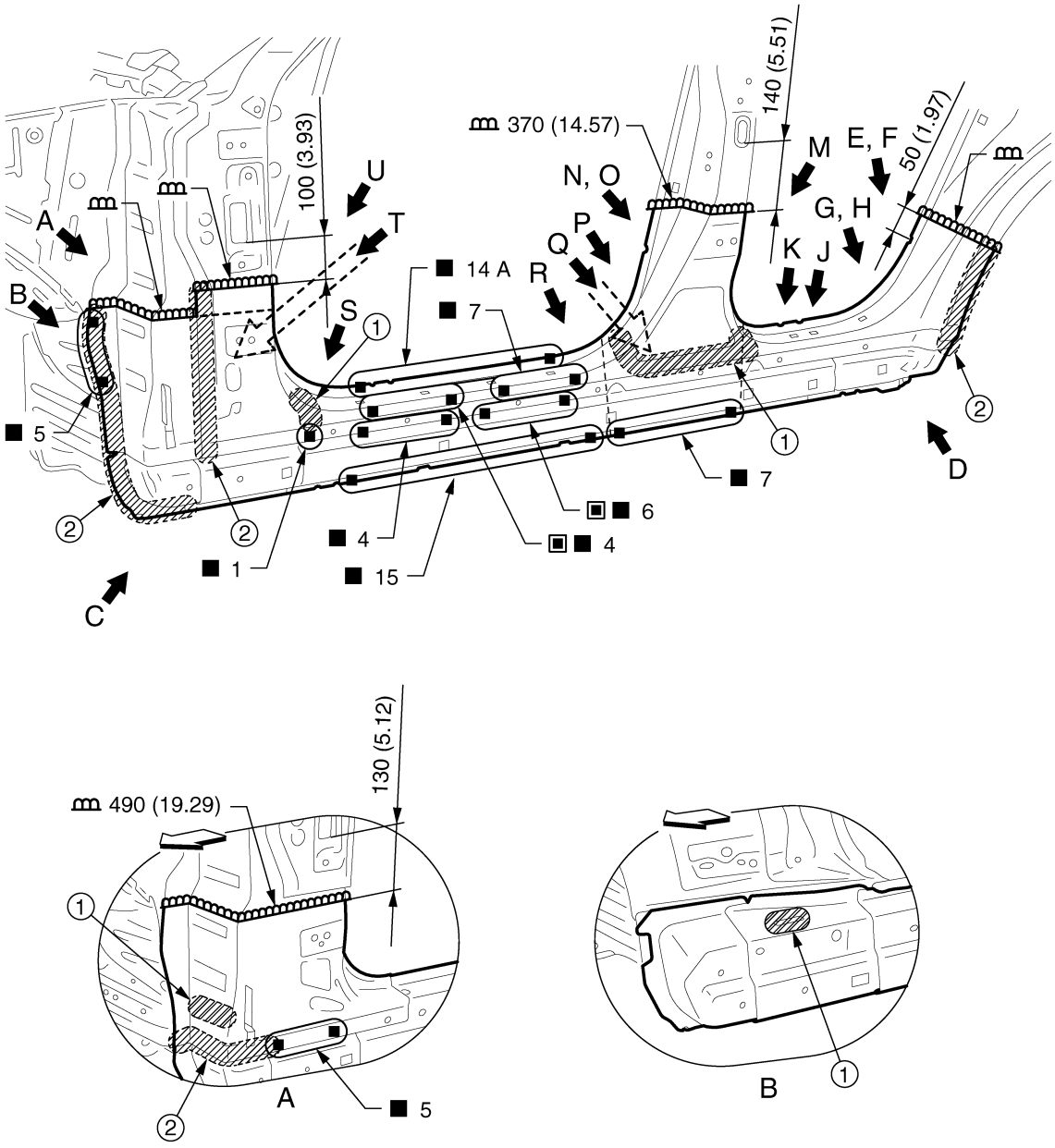
Refer to GI-4, "Components" for symbols in the figure.

View C and F: Before installing outer front side body

Outer Sill

INFOID:0000000003858175

Work after hoodledge reinforcement is removed.
Remove the front pillar brace and the center pillar reinforcement (reusable).



JSKIA0682GB

1. Urethane foam
2. Body sealing

Unit: mm (in)

⇦: Vehicle front

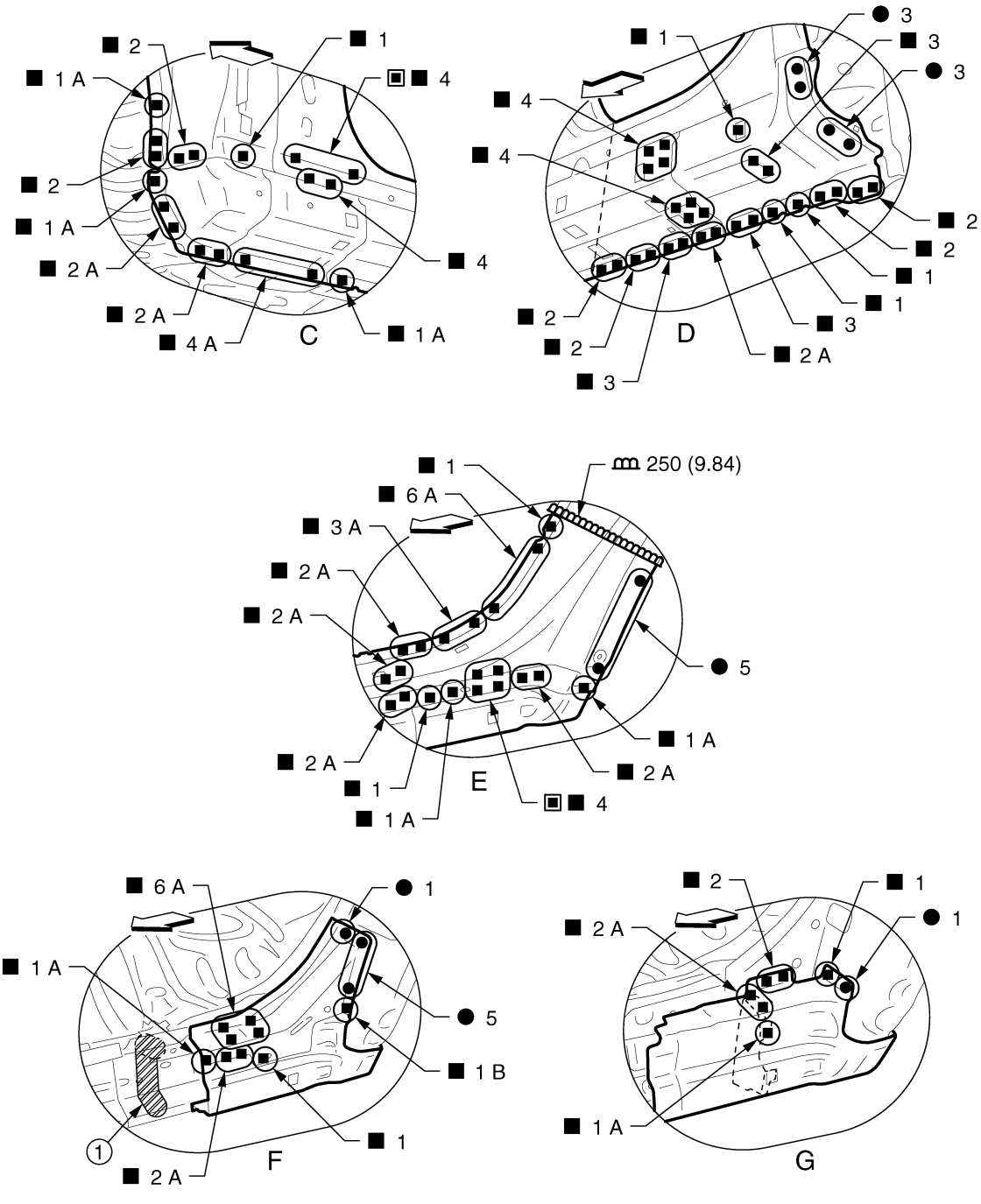
■: Perform the plug welding instead of the laser welding.

Replacement parts

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

View A: Before installing outer sill

View B: Before installing outer sill and front pillar brace



JSKIA0683ZZ

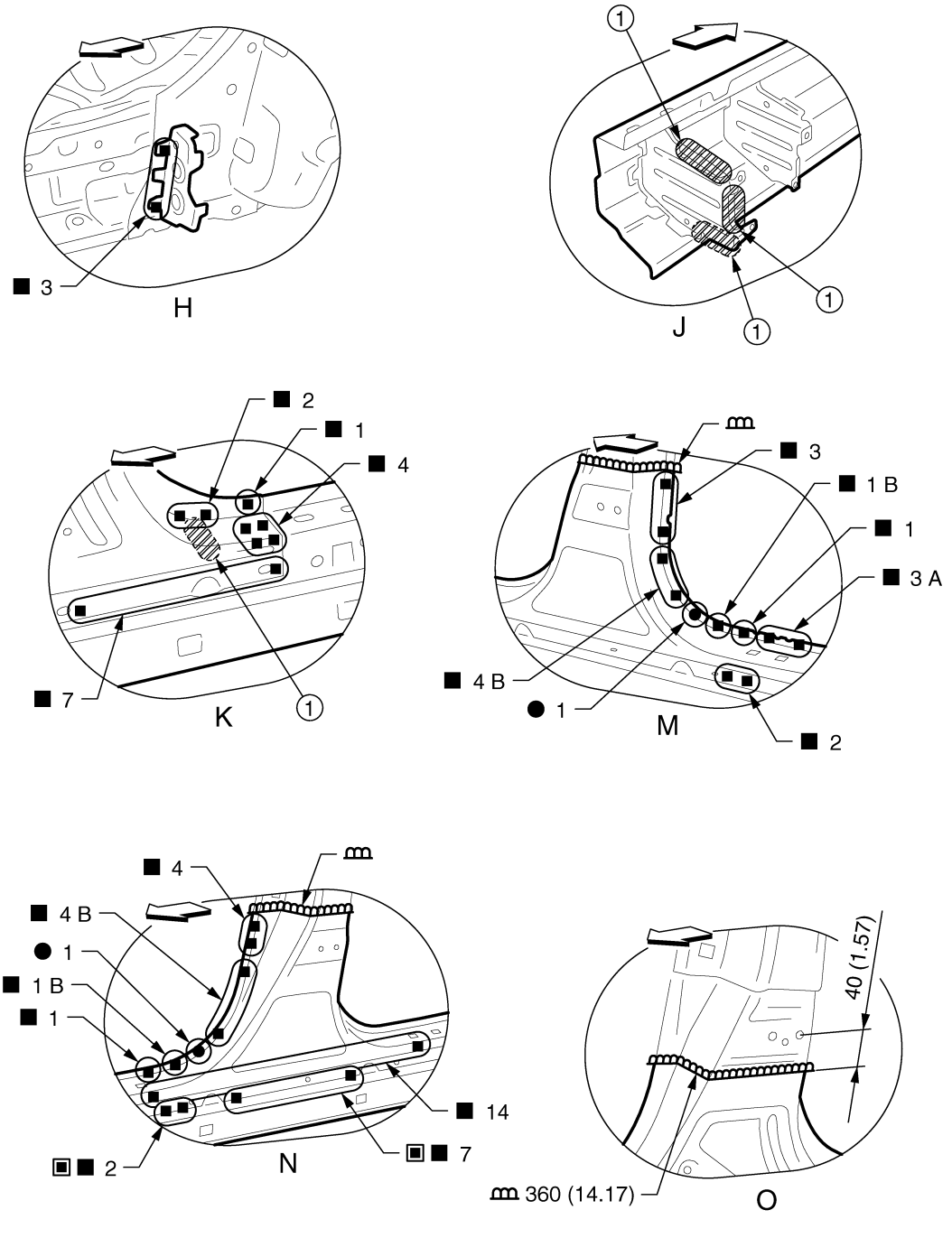
1. Urethane foam

Unit: mm (in)

⇦: Vehicle front

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

View F: Before installing outer sill and outer sill reinforcement
View G: Before installing outer sill, outer sill reinforcement, and upper outer rear wheelhouse extension



JSKIA0684GB

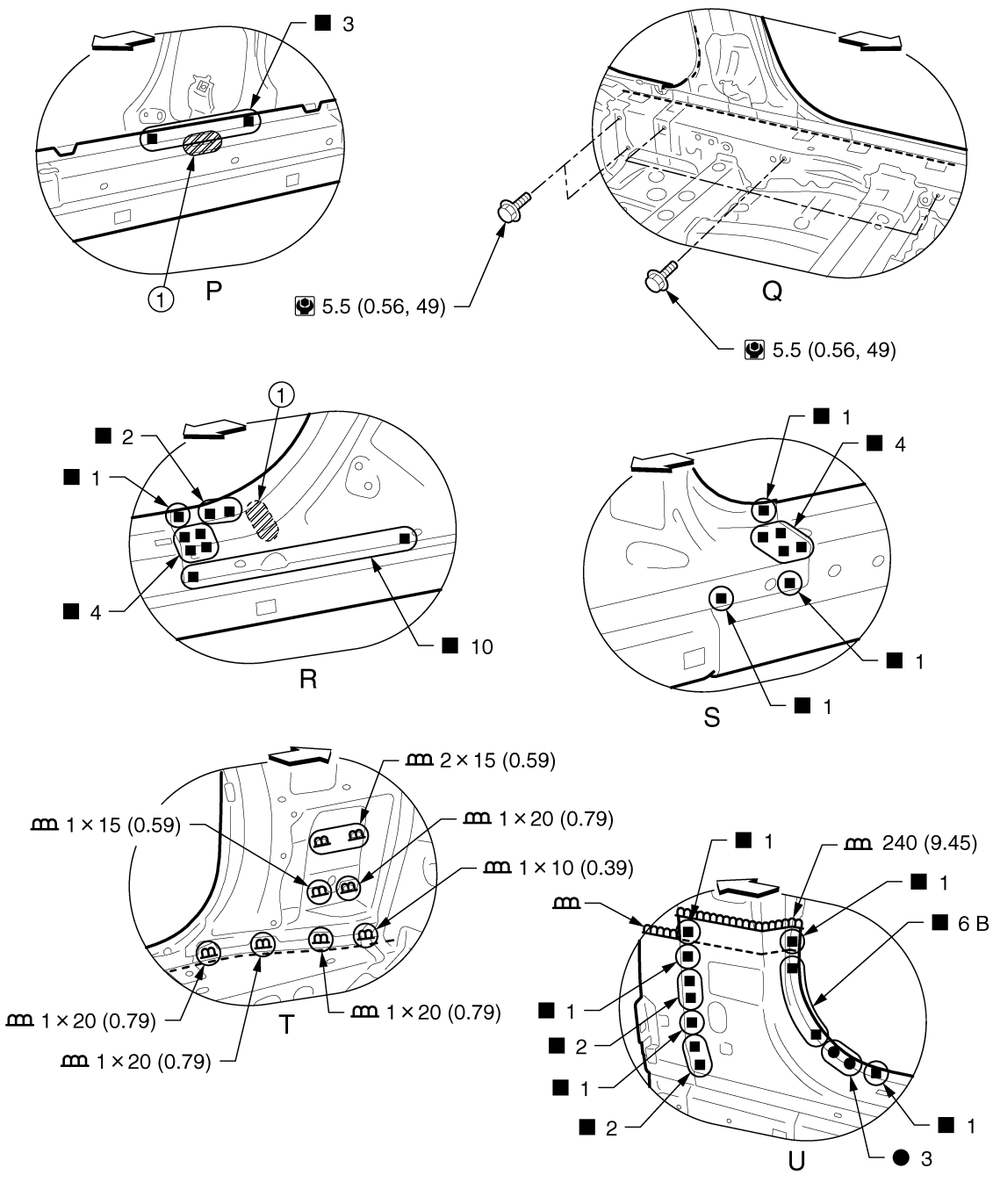
1. Urethane foam

Unit: mm (in)

⇦: Vehicle front

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

View H: Before installing outer sill, outer sill reinforcement, upper outer rear wheelhouse extension, and lower outer rear wheelhouse extension
View J: Outer sill reinforcement (replacement parts)
View K and O: Before installing outer sill



1. Urethane foam

Unit: mm (in)

⇦: Vehicle front

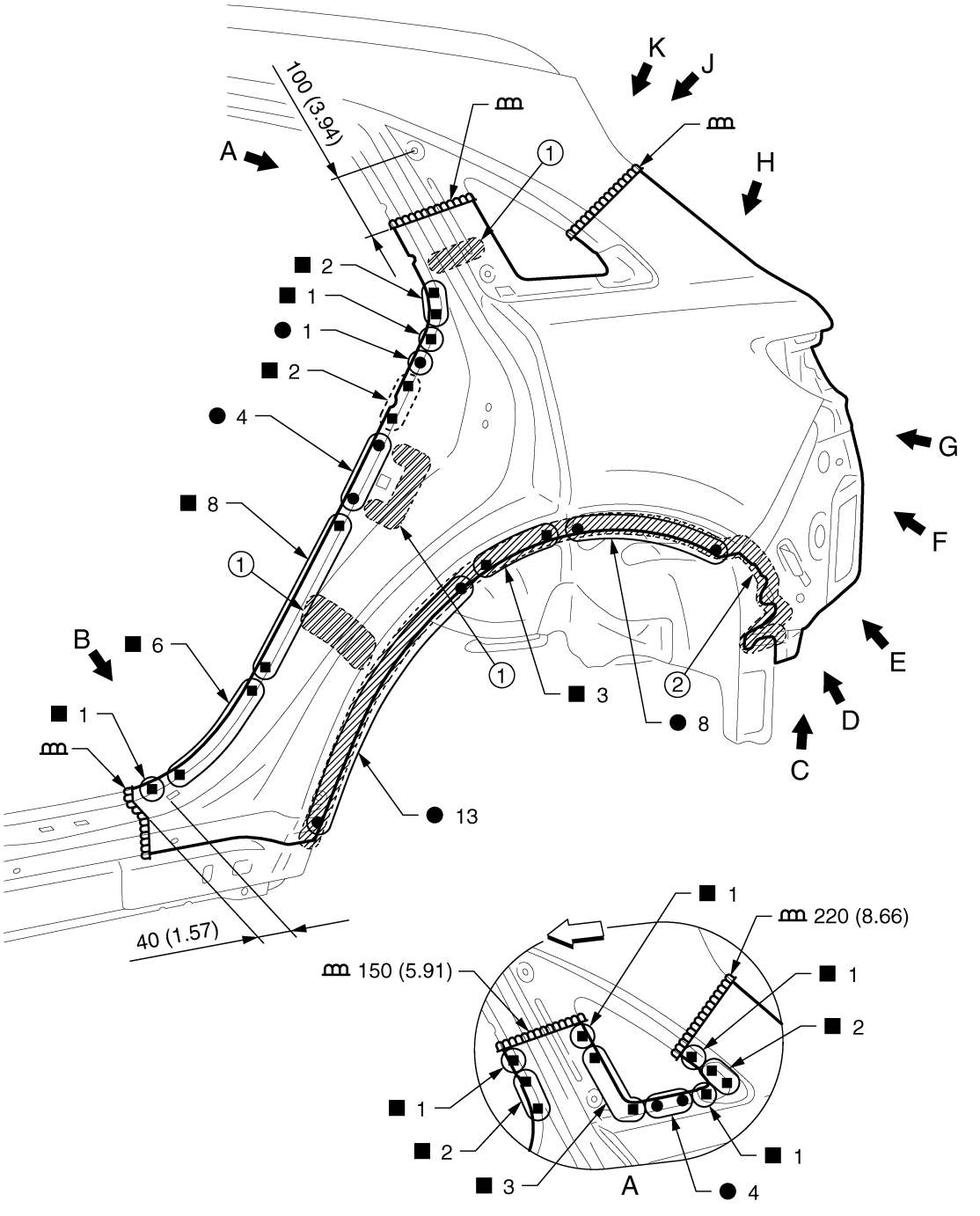
Refer to GI-4, "Components" for symbols in the figure.

View P: Before installing outer sill and center pillar reinforcement
View R and S: Before installing outer sill

Rear Fender

INFOID:0000000003858176

Remove the upper back pillar assembly and lower back pillar assembly from the rear fender assembly service part for easier installation.



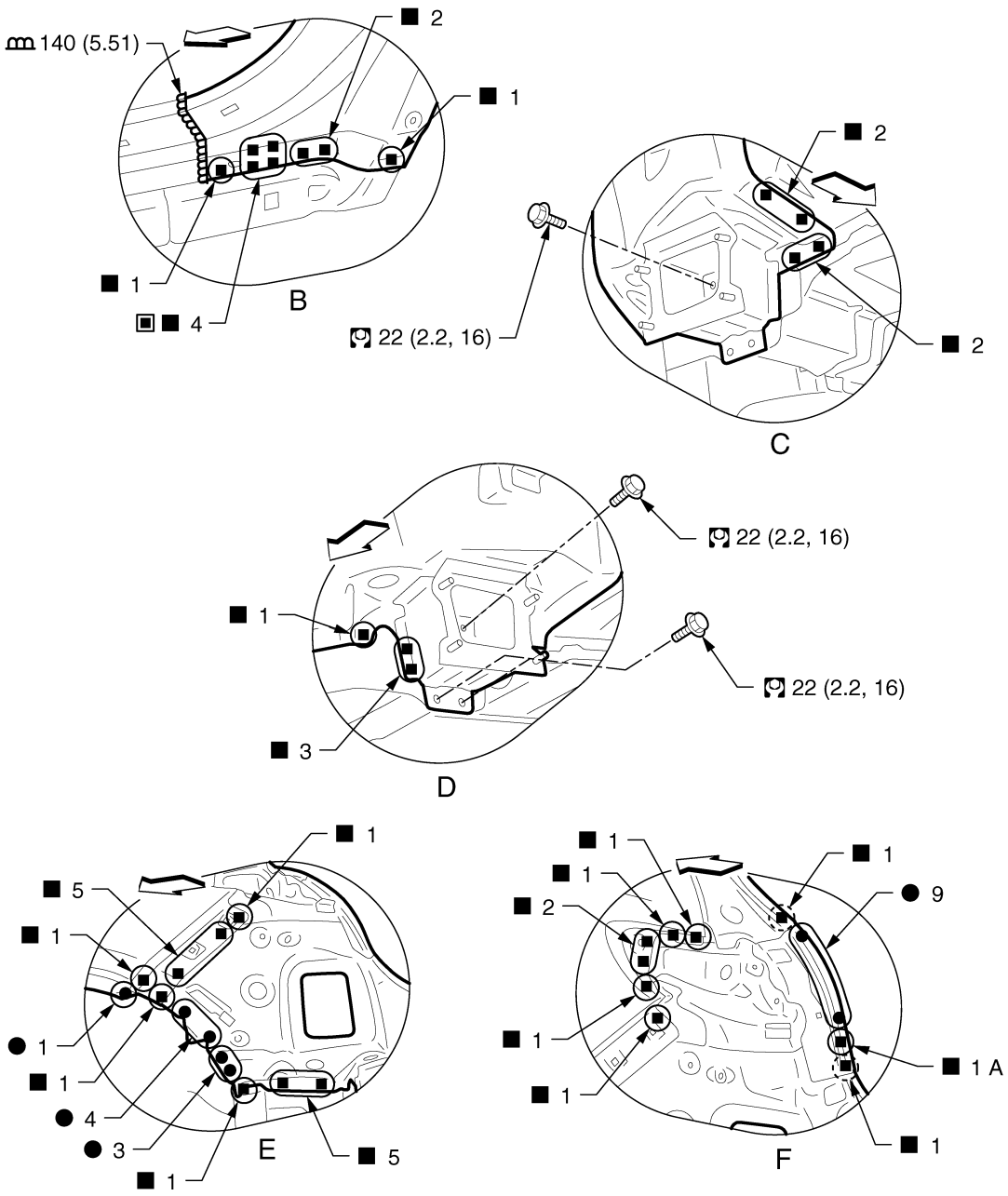
1. Urethane foam
2. Body sealing

Unit: mm (in)

⇦: Vehicle front

Replacement parts

- Rear fender assembly (LH)



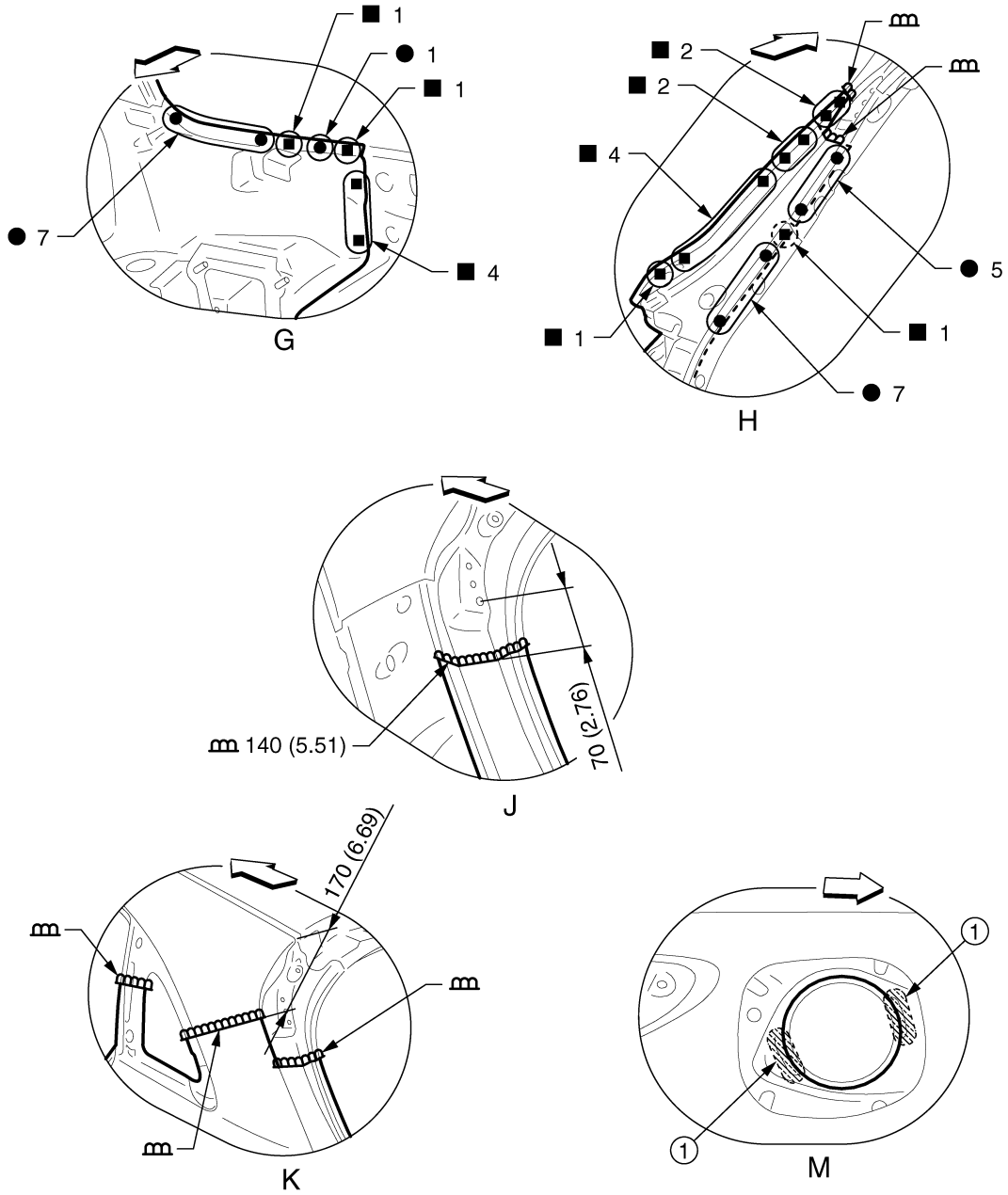
JSKIA0687GB

Unit: mm (in)

⇦: Vehicle front

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

Refer to GI-4, "Components" for symbols in the figure.



JSKIA0688GB

1. Adhesive

Unit: mm (in)

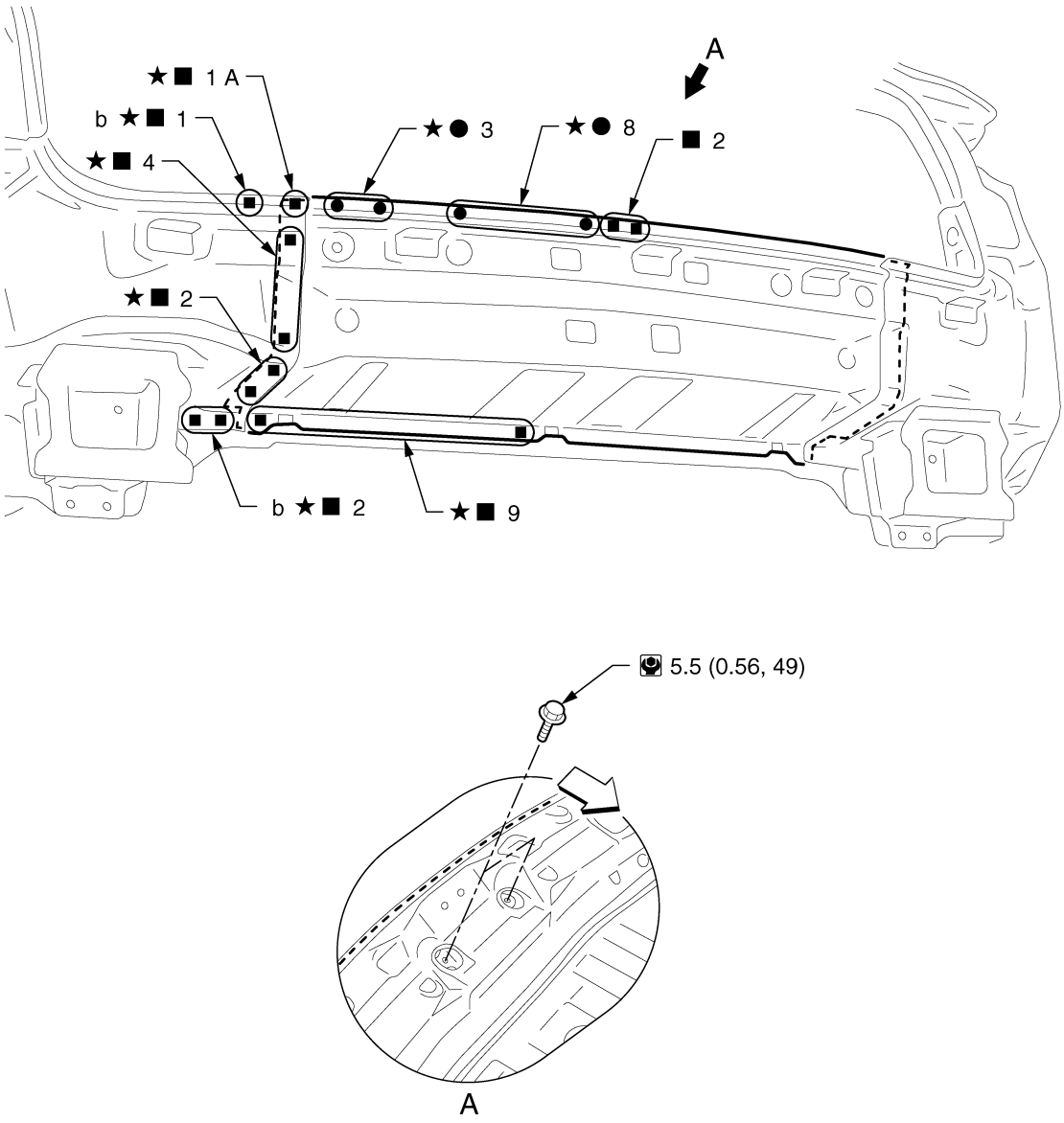
⇦: Vehicle front

View J: Before installing rear fender
View M: Right side rear fender

Rear Panel

INFOID:0000000003858177

Remove the welding point ″b″ for easier replacement.



JSKIA0689GB

⇦: Vehicle front

★: An equivalent welding portion with the same dimensions is on the opposite side.

Refer to GI-4, "Components" for symbols in the figure.

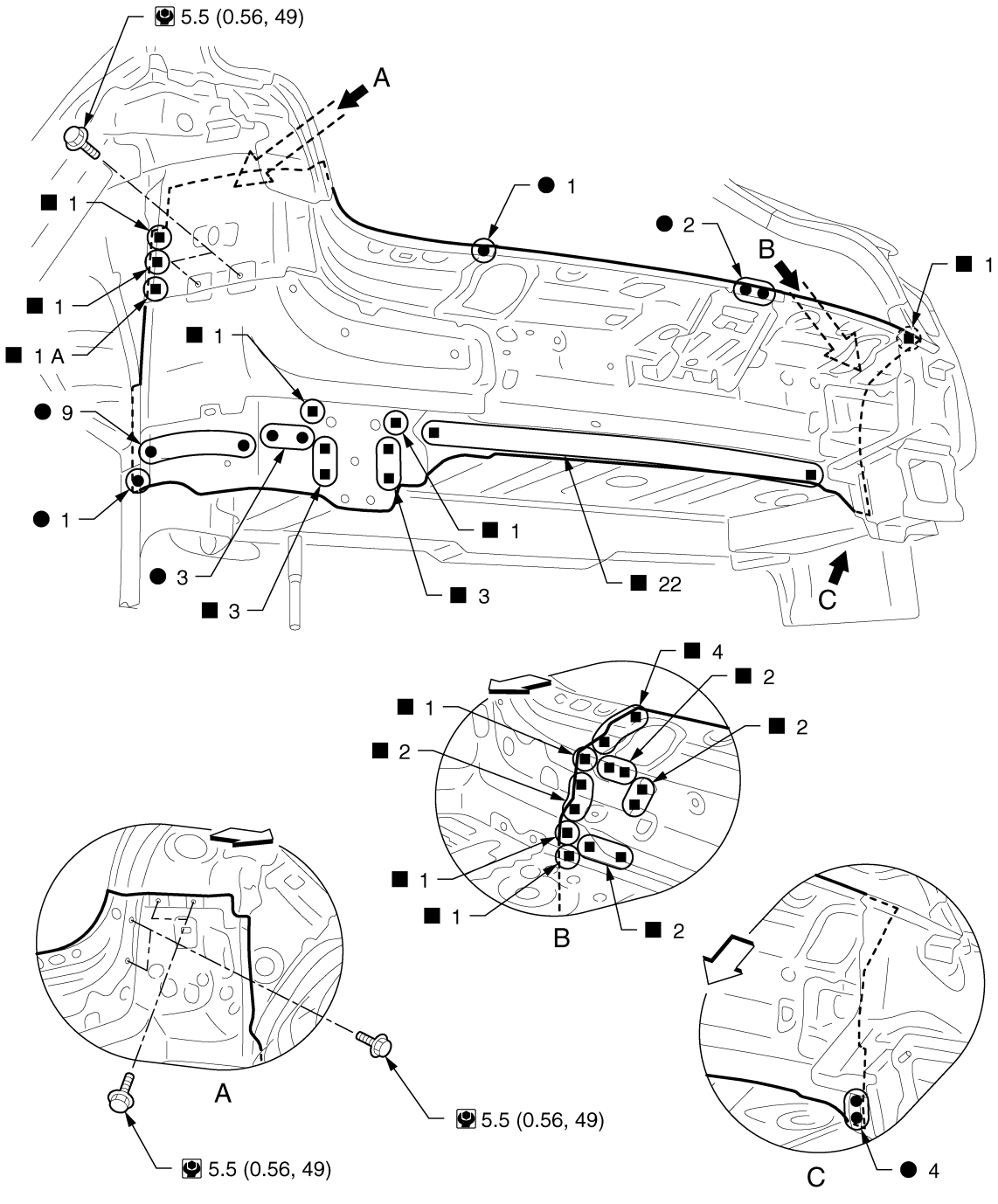
Replacement parts

- Rear panel assembly

Rear End Crossmember

INFOID:0000000003858178

Work after rear fender extension and rear panel are removed.



⇦: Vehicle front

Refer to GI-4, "Components" for symbols in the figure.

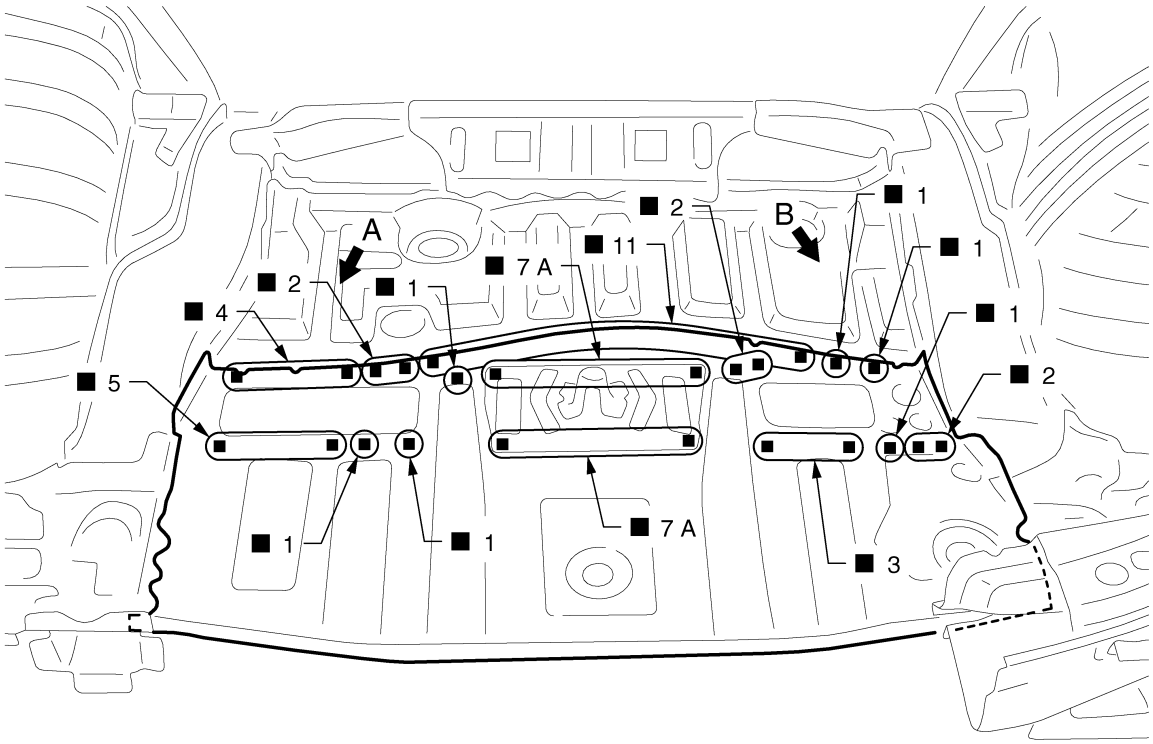
Replacement parts

- Rear end crossmember assembly

Rear Floor Rear

INFOID:0000000003858179

Work after rear panel, lower back pillar assembly, and rear end crossmember assembly are removed.



JSKIA0691GB

Unit: mm (in)

⇦: Vehicle front

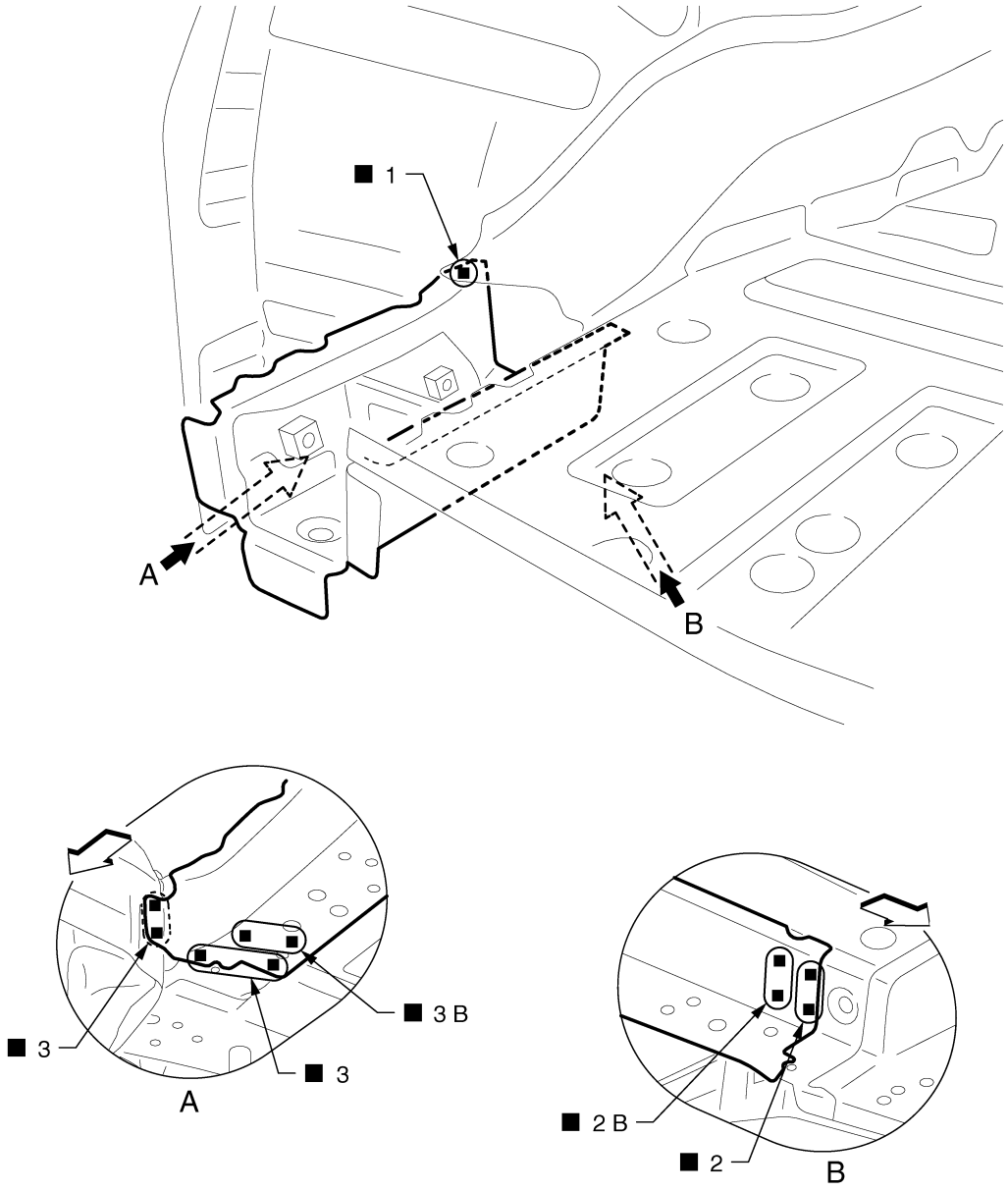
Replacement parts

- Rear floor rear
- Spare tire clamp reinforcement

Rear Side Member Extension

INFOID:0000000003858180

Work after rear panel, lower back pillar assembly, rear end crossmember, and rear floor side are removed.



JSKIA0692ZZ

⇦: Vehicle front

Replacement parts

- Rear side member extension (LH)