SECTION BRM
BODY REPAIR

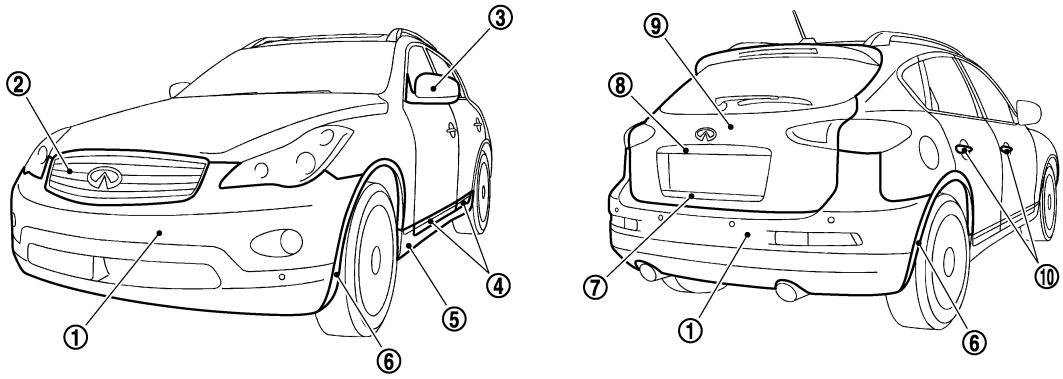
CONTENTS

FEATURES OF NEW MODEL

BODY EXTERIOR PAINT COLOR

Body Exterior Paint Color

INFOID:0000000003134488



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Component			Color code	BFAA	BKAG	BKH3	BK23	BK51	BK52	BL50	BQAA
			Description	Grayish Green	Reddish Silver	Black	Silver	Gray	Dark Gray	Brownish Purple	White
			Paint type note	TPM	PM	2S	M	M	PM	PM	3P
			Anti scratch advanced paint	×	×	×	×	×	×	×	×
1	Bumper fascia		Body color	BFAA	BKAG	BKH3	BK23	BK51	BK52	BL50	BQAA
			Material color	-	-	-	-	-	-	-	-
2	Front grille		Chromium-plate	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr
3	Door outside mirror	Cover	Body color	BFAA	BKAG	BKH3	BK23	BK51	BK52	BL50	BQAA
4	Side guard molding		Chromium-plate	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr
			Material color	-	-	-	-	-	-	-	-
5	Center mud-guard		Chromium-plate	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr
			Material color	-	-	-	-	-	-	-	-
6	Fillet molding		Material color	-	-	-	-	-	-	-	-
7	Center back door finisher		Chromium-plate	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr
8	Back door finisher		Chromium-plate	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr
9	Back door		Body color	BFAA	BKAG	BKH3	BK23	BK51	BK52	BL50	BQAA
10	Door outside handle		Chromium-plate	Cr	Cr	Cr	Cr	Cr	Cr	Cr	Cr

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

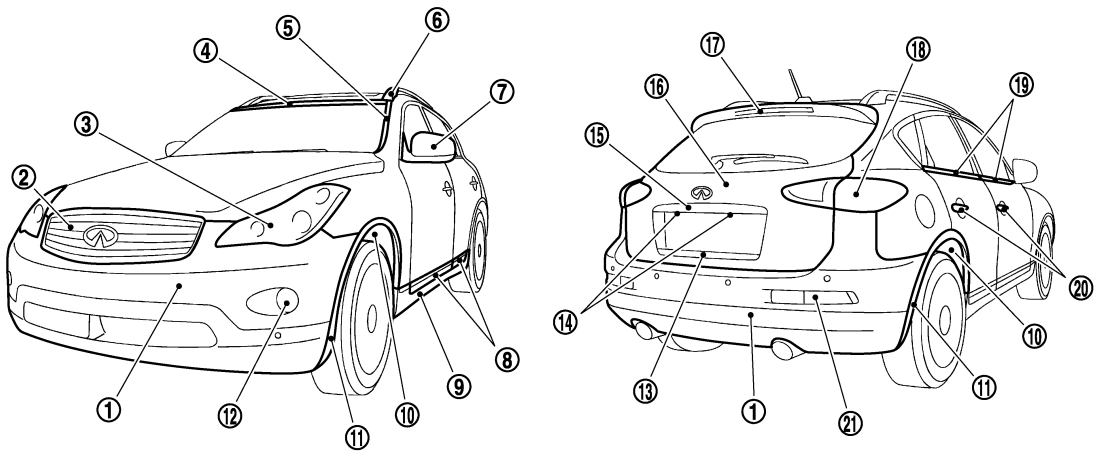
Precautions For Plastics

INFOID:0000000003134489

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	Polyester	180 (356)	Same as above.	—
PEI	Polyetherimide	200 (392)	Same as above.	—

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

LOCATION OF PLASTIC PARTS



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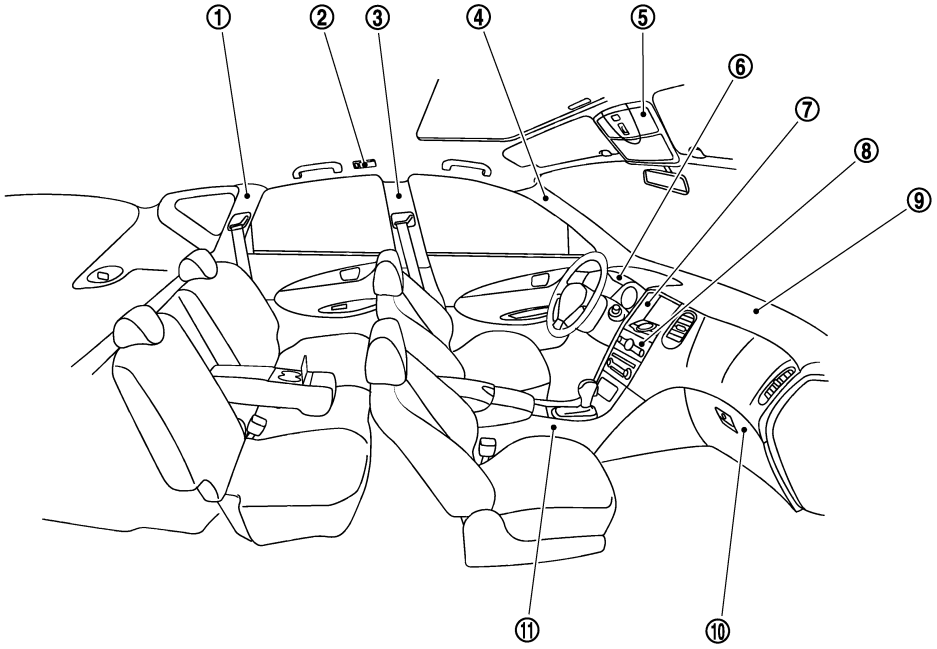
	Component		Material		Component		Material
1	Bumper fascia		PP + EPM	13	Back door finisher		ABS
2	Front grille		ABS	14	License plate lamp	Lens	PC
3	Front combination lamp	Lens	PC			Housing	PC
		Housing	PP	15	Center back door finisher		ABS
4	Upper windshield molding		TPO	16	Back door		PP + EPM
5	Roof side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



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

REMOVAL AND INSTALLATION

BODY COMPONENT PARTS

Underbody Component Parts

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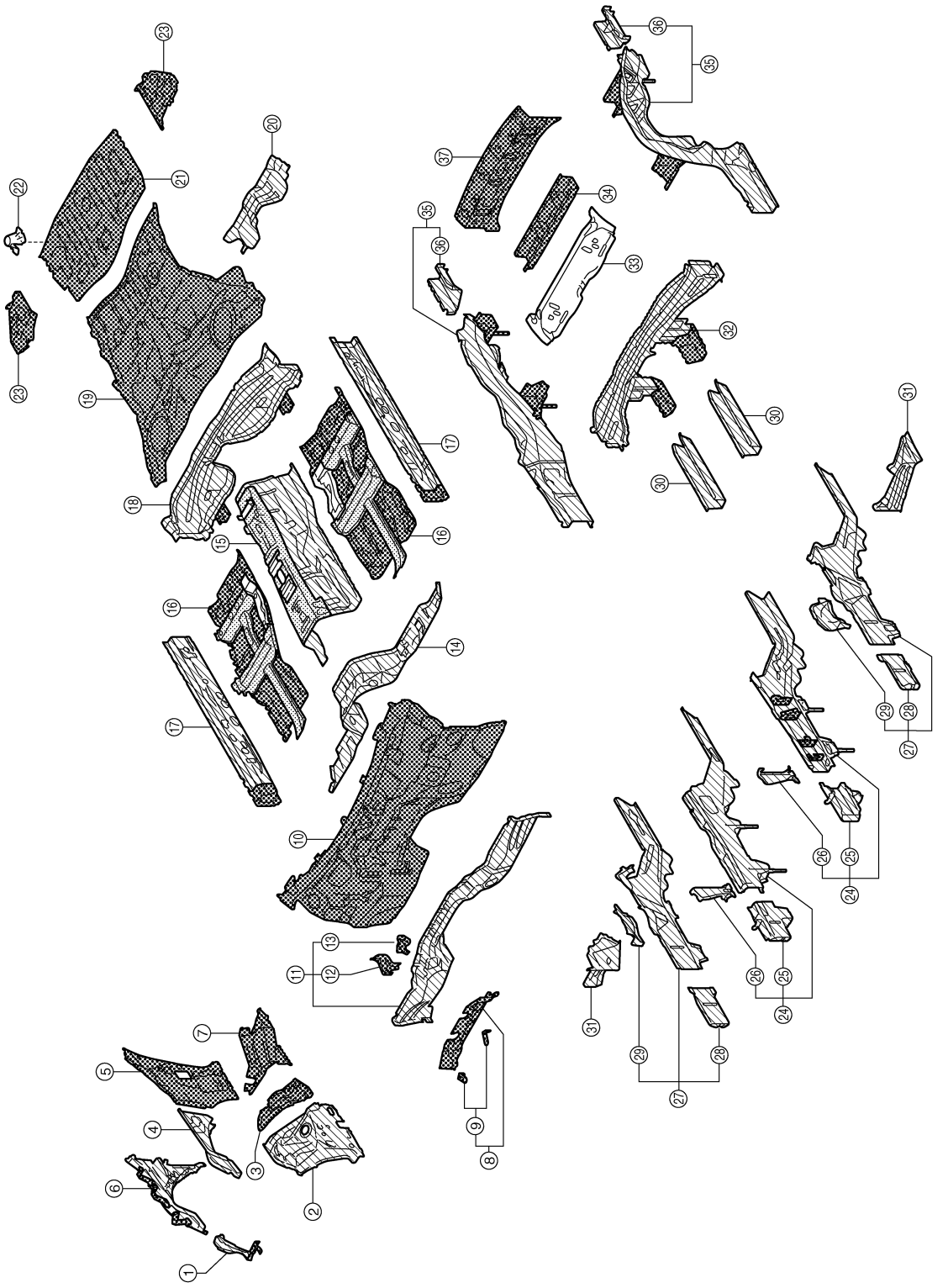

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1. Radiator core support assembly (RH & LH)
2. Front strut housing (RH & LH)
3. Lower rear hoodledge (RH & LH)
4. Upper front hoodledge (RH & LH)
5. Upper rear hoodledge (RH & LH)
6. Hoodledge reinforcement (RH & LH)
7. Upper side cowl top (RH & LH)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

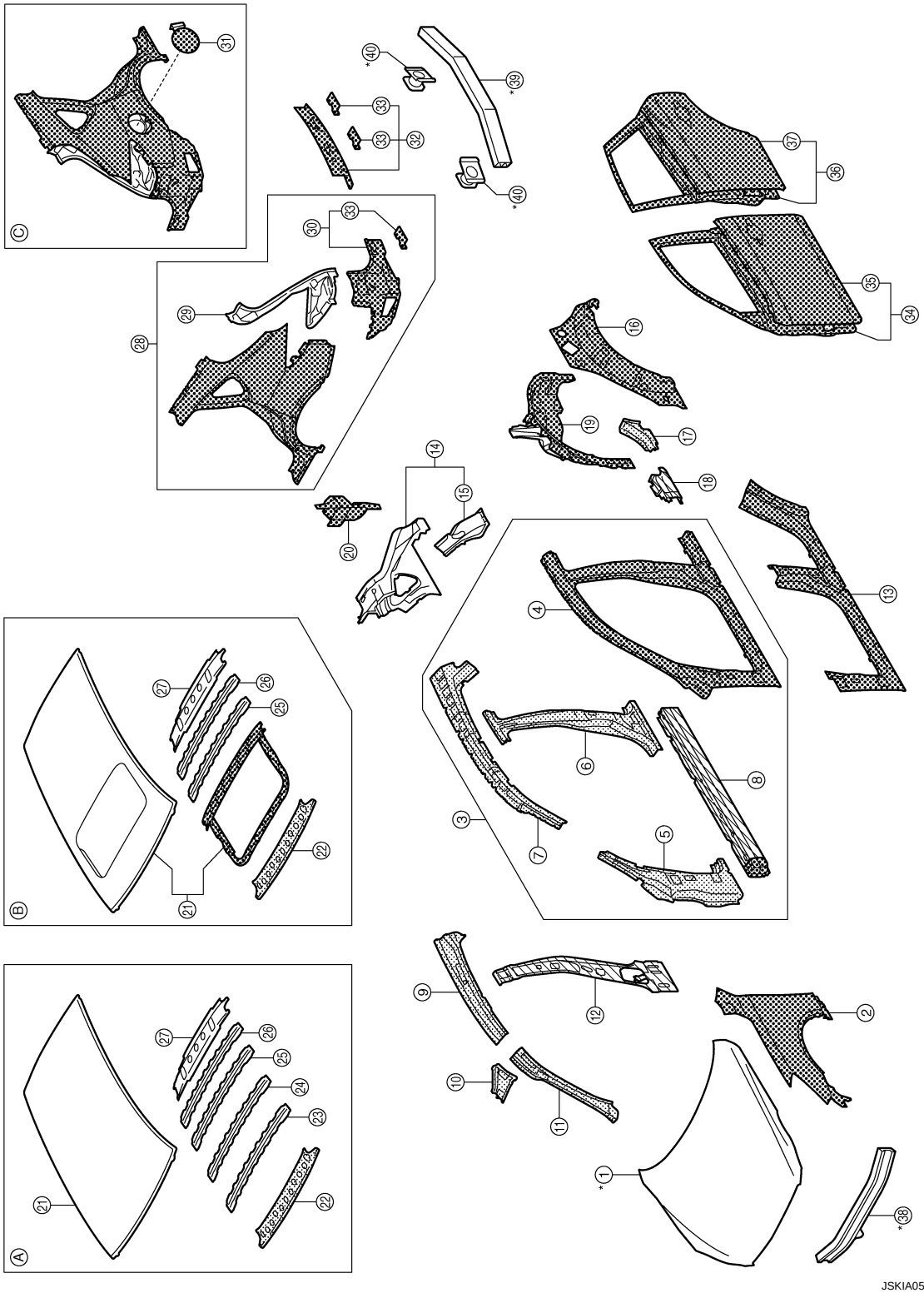
: Both sided anti-corrosive precoated steel portions

: High strength steel (HSS) portions

: Both sided anti-corrosive steel and HSS portions

Body Component Parts

INFOID:0000000003134491



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. Front roof rail brace (RH & LH)
11. Upper inner front pillar assembly (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. Lower inner rear pillar (RH & LH)
21. Roof
22. Front roof rail
23. Roof bow No. 1
24. Roof bow No. 2
25. Roof bow No. 3
26. Roof bow No. 4
27. Rear roof rail
28. Rear fender assembly (RH & LH)
29. Tail pillar assembly (RH & LH)
30. Rear fender extension (RH & LH)
31. Fuel filler lid
32. Rear panel assembly
33. Upper rear bumper retainer
34. Front door assembly (RH & LH)
35. Outer front door panel (RH & LH)
36. Rear door assembly (RH & LH)
37. Outer rear door panel (RH & LH)
38. Inner center front bumper reinforcement
39. Inner center rear bumper reinforcement assembly
40. Rear bumper stay (RH & LH)

: Both sided anti-corrosive precoated steel portions

: High strength steel (HSS) portions

: Both sided anti-corrosive steel and HSS portions

* : Aluminum portion

CORROSION PROTECTION

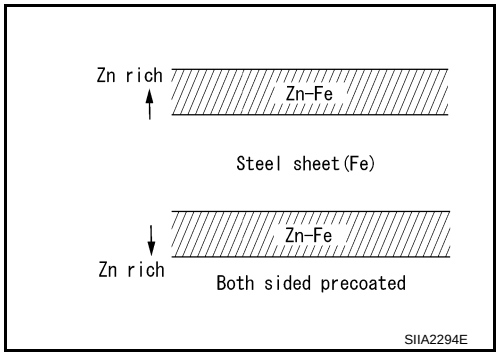
Description

INFOID:0000000003134492

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

Anti-Corrosive Precoated Steel (Galvannealed Steel)

To improve repairability and corrosion resistance, a new type of anti-corrosive precoated steel sheet has been adopted replacing conventional zinc-coated steel sheet.
Galvannealed steel is electroplated and heated to form Zinc-iron alloy, which provides excellent and long term corrosion resistance with cationic electrodeposition primer.



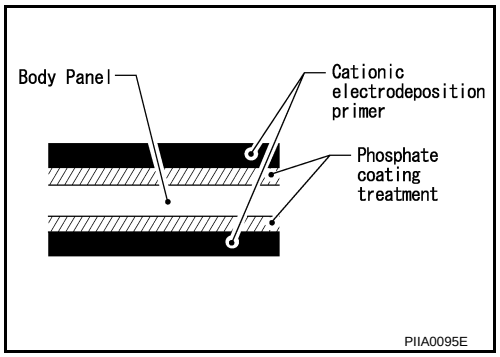
Nissan Genuine Service Parts are fabricated from galvannealed steel. Therefore, it is recommended that GENUINE NISSAN PARTS or equivalent be used for panel replacement to maintain the anti-corrosive performance built into the vehicle at the factory.

Phosphate Coating Treatment and Cationic Electrodeposition Primer

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

CAUTION:

Confine paint removal during welding operations to an absolute minimum.



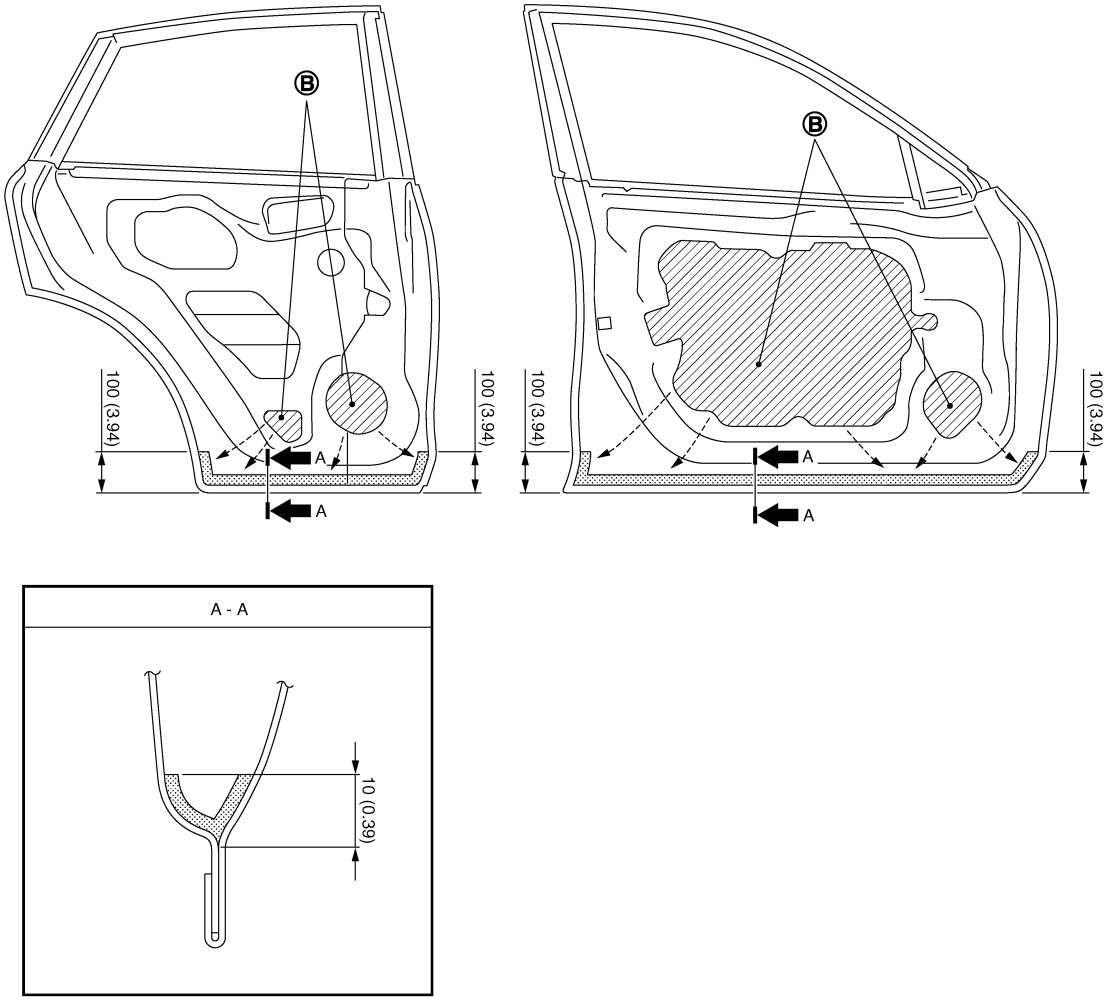
Nissan Genuine Service Parts are also treated in the same manner. Therefore, it is recommended that GENUINE NISSAN PARTS or an equivalent be used for panel replacement to maintain anti-corrosive performance built into the vehicle at the factory.

Anti-corrosive Wax

INFOID:0000000003736007

To improve corrosion resistance, anti-corrosive wax is applied inside the body sill and inside other closed sections. Accordingly, when replacing these parts, be sure to apply anti-corrosive wax to the appropriate areas of the new parts. Select an excellent anti-corrosive wax which will penetrate after application and has a long shelf life.

DOOR



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B. Nozzle insert hole

: Anti-corrosive wax coated portions

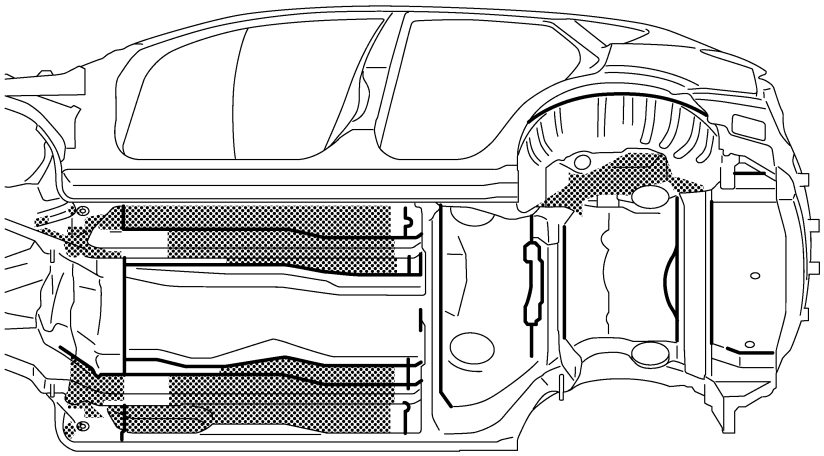
Undercoating

INFOID:0000000003134493

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

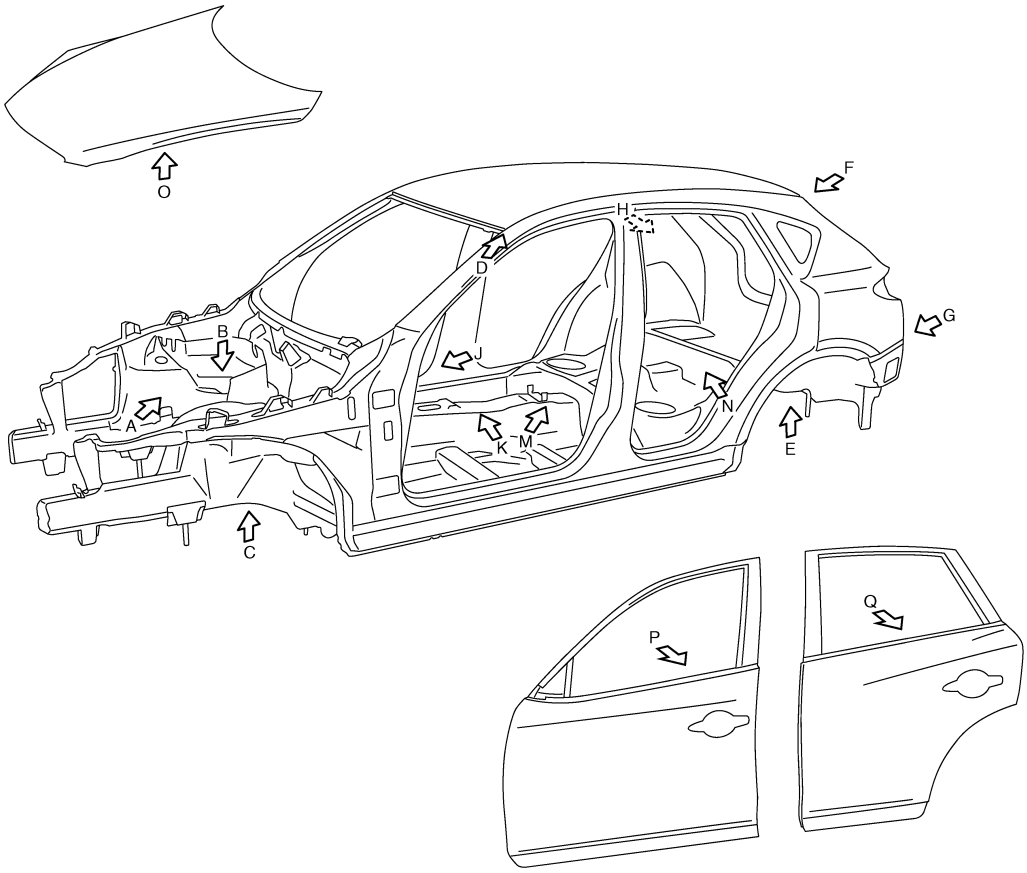
BODY SEALING

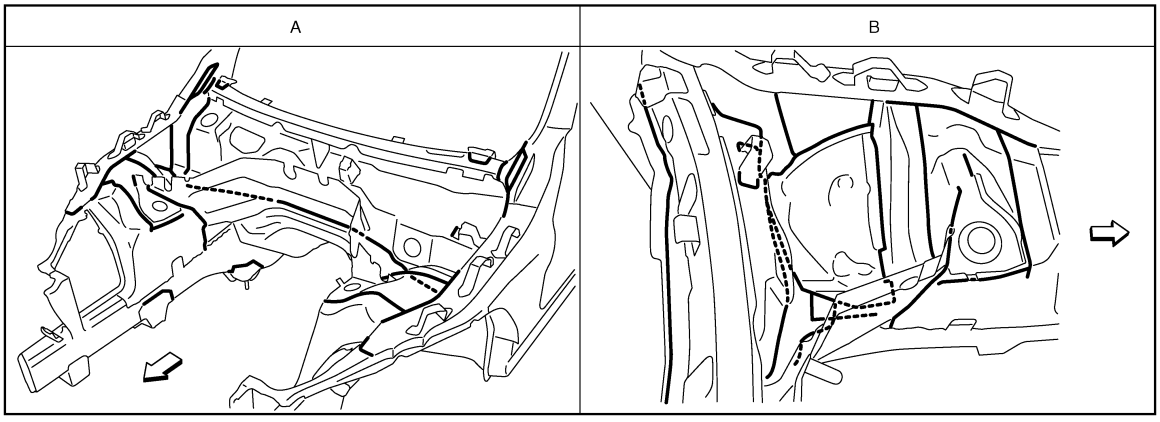
Description

INFOID:0000000003134494

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

2WD





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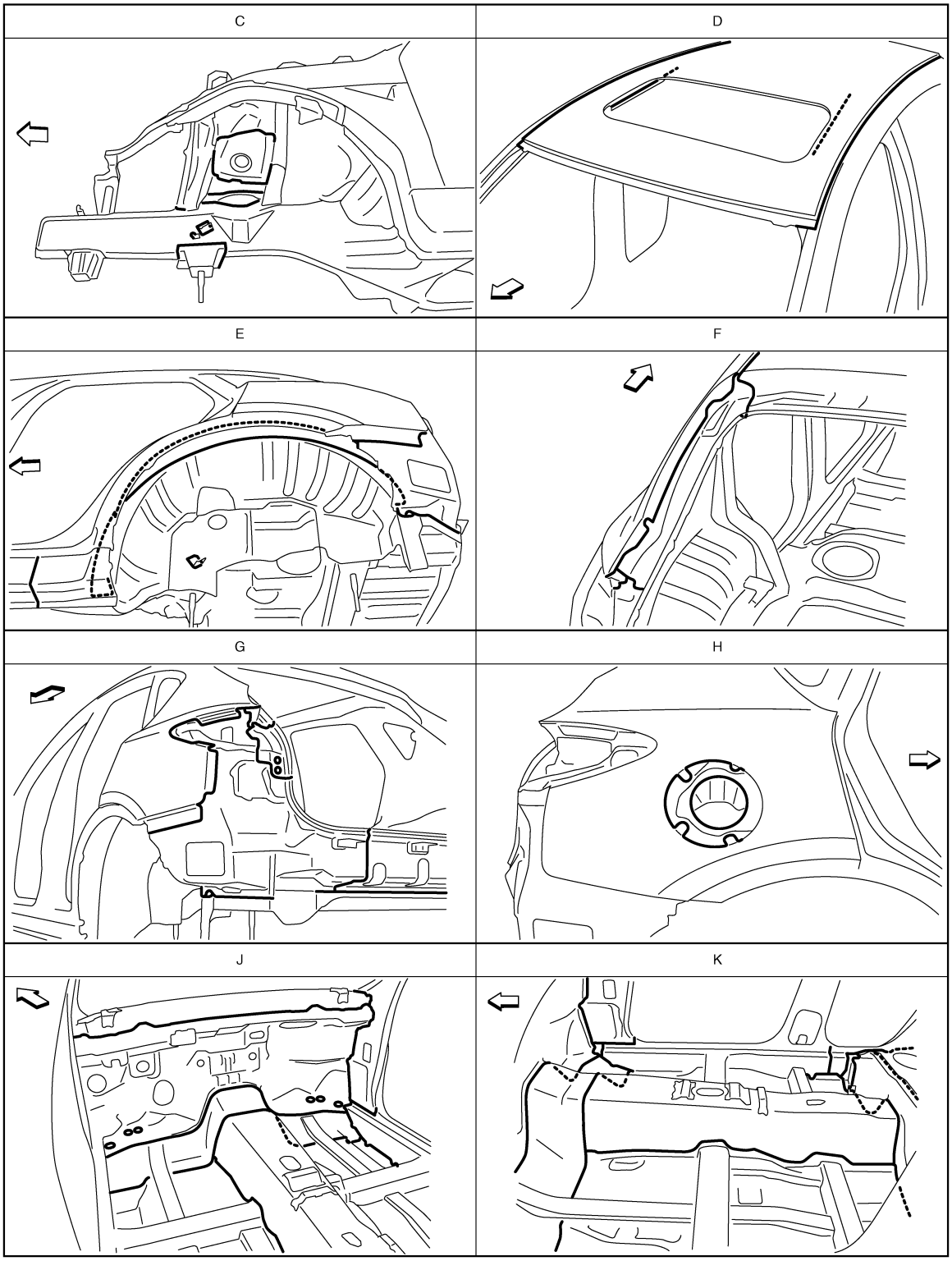
⇦ : Vehicle front

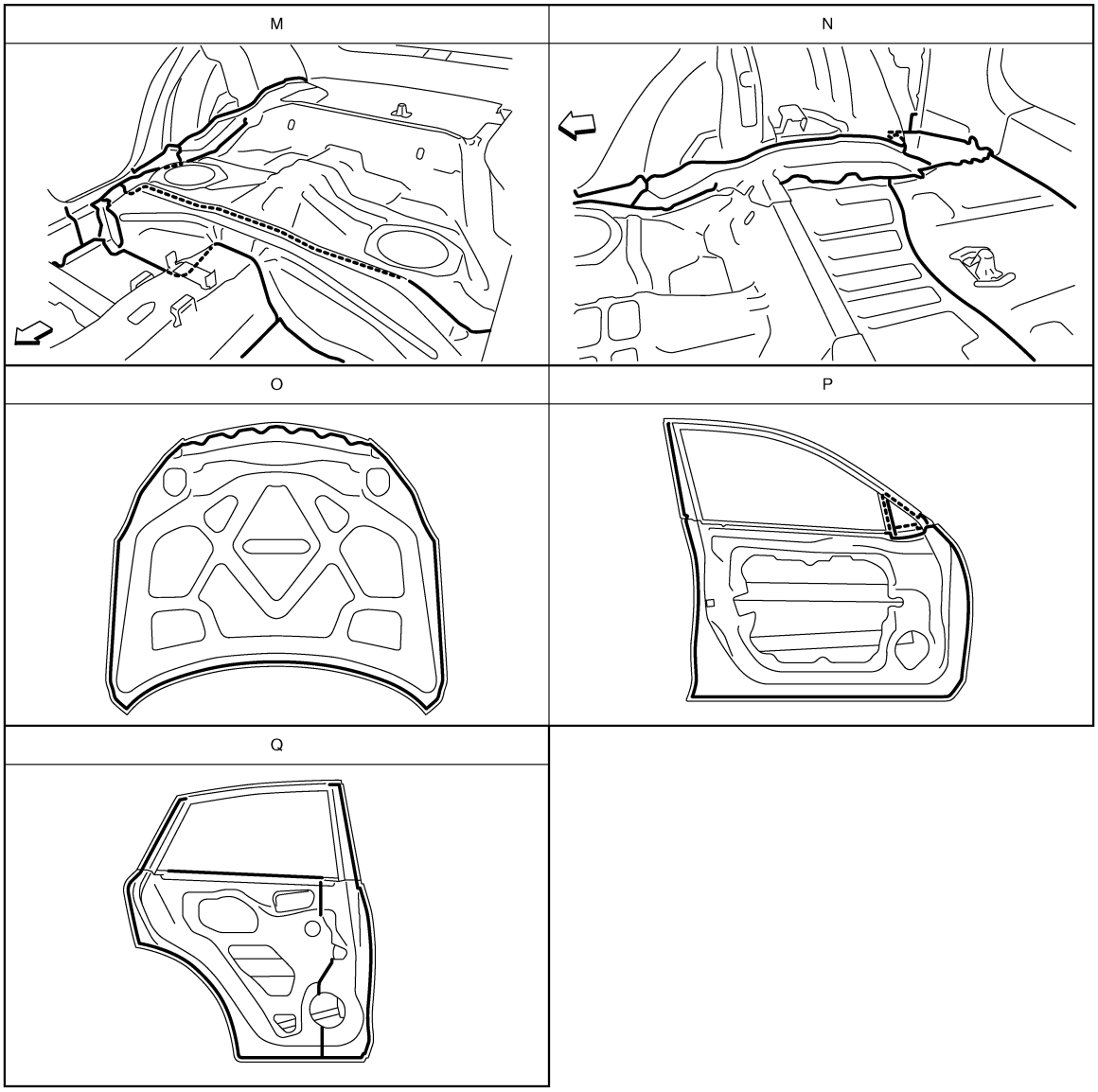
▬ : Sealed portions



JSKIA0587ZZ

⇦ : Vehicle front

▬ : Sealed portions

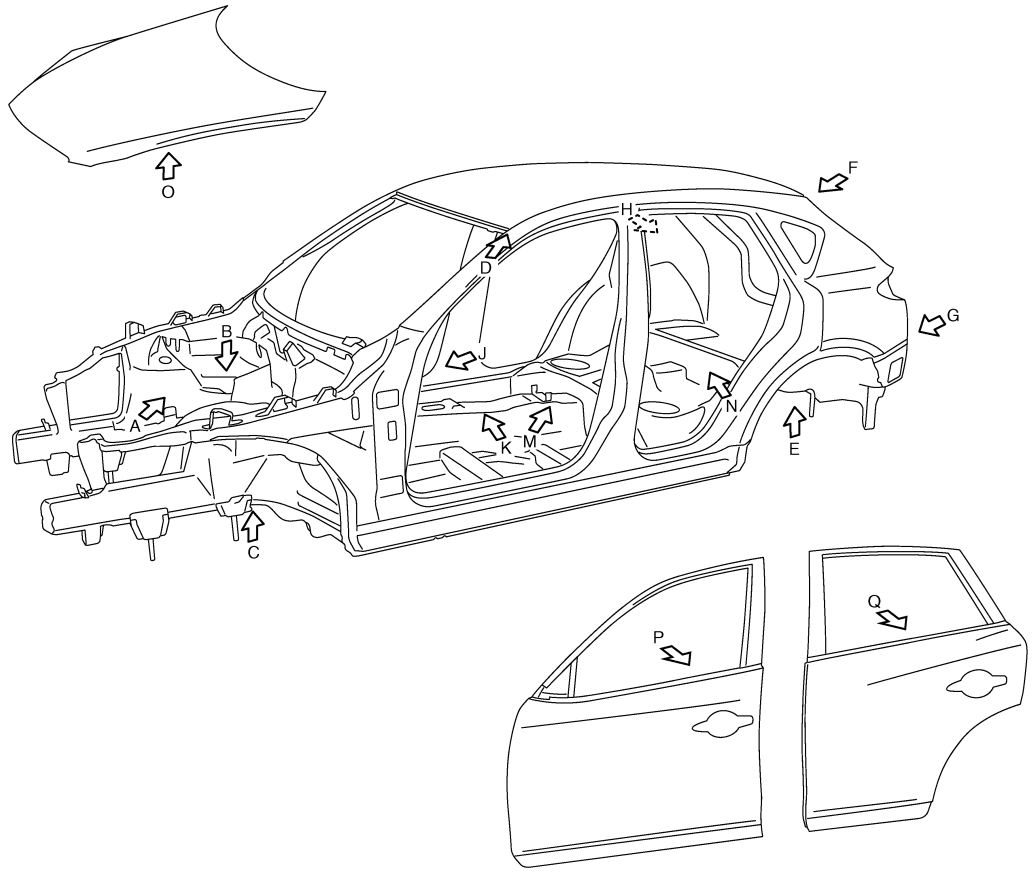


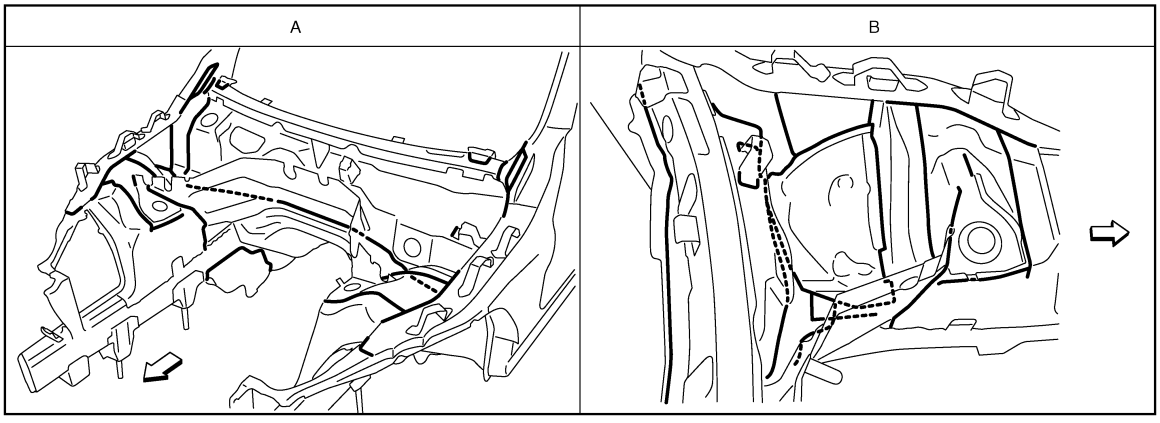
JSKIA0588ZZ

⇦ : Vehicle front

▬ : Sealed portions

AWD





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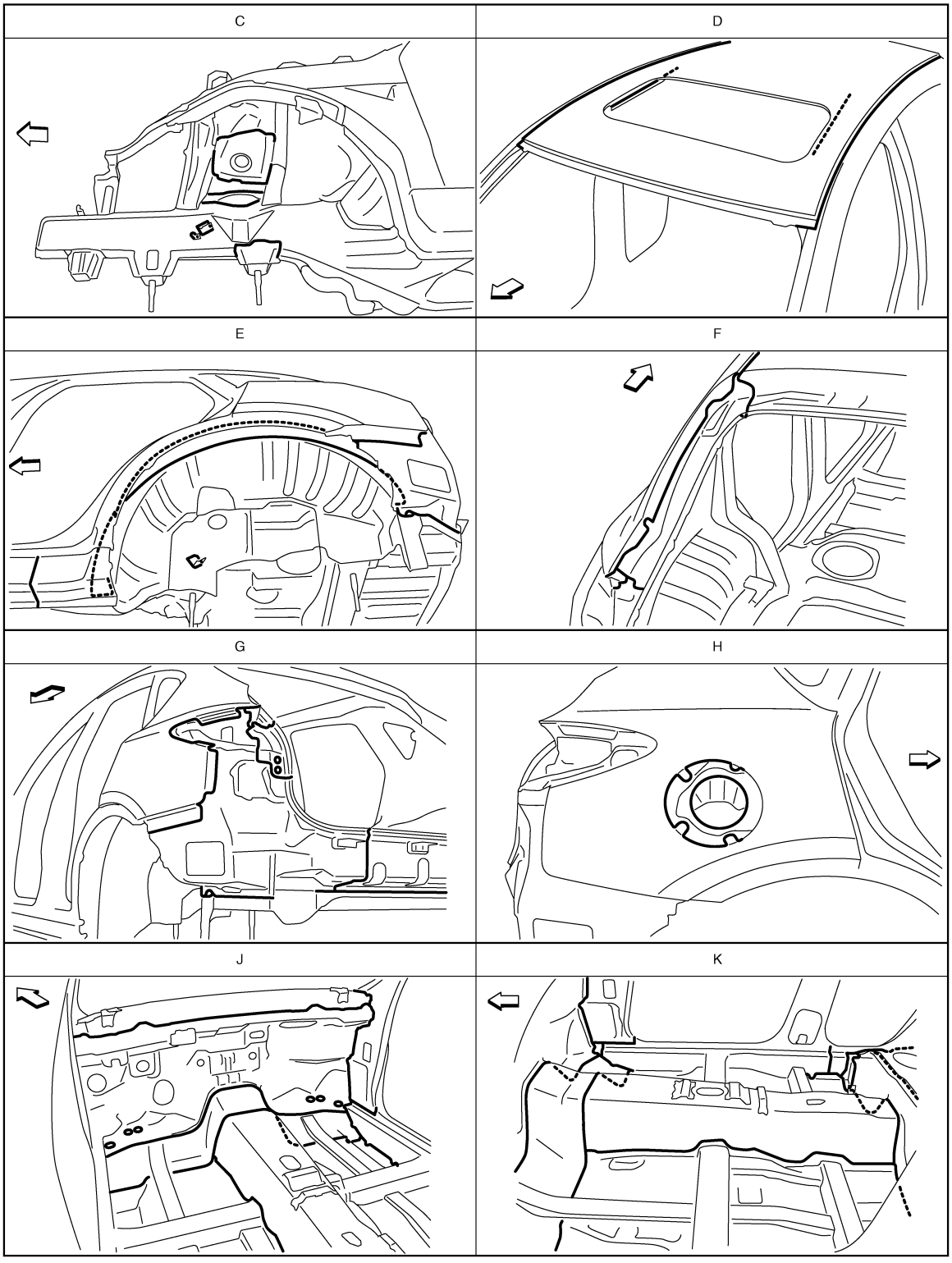
⇦ : Vehicle front

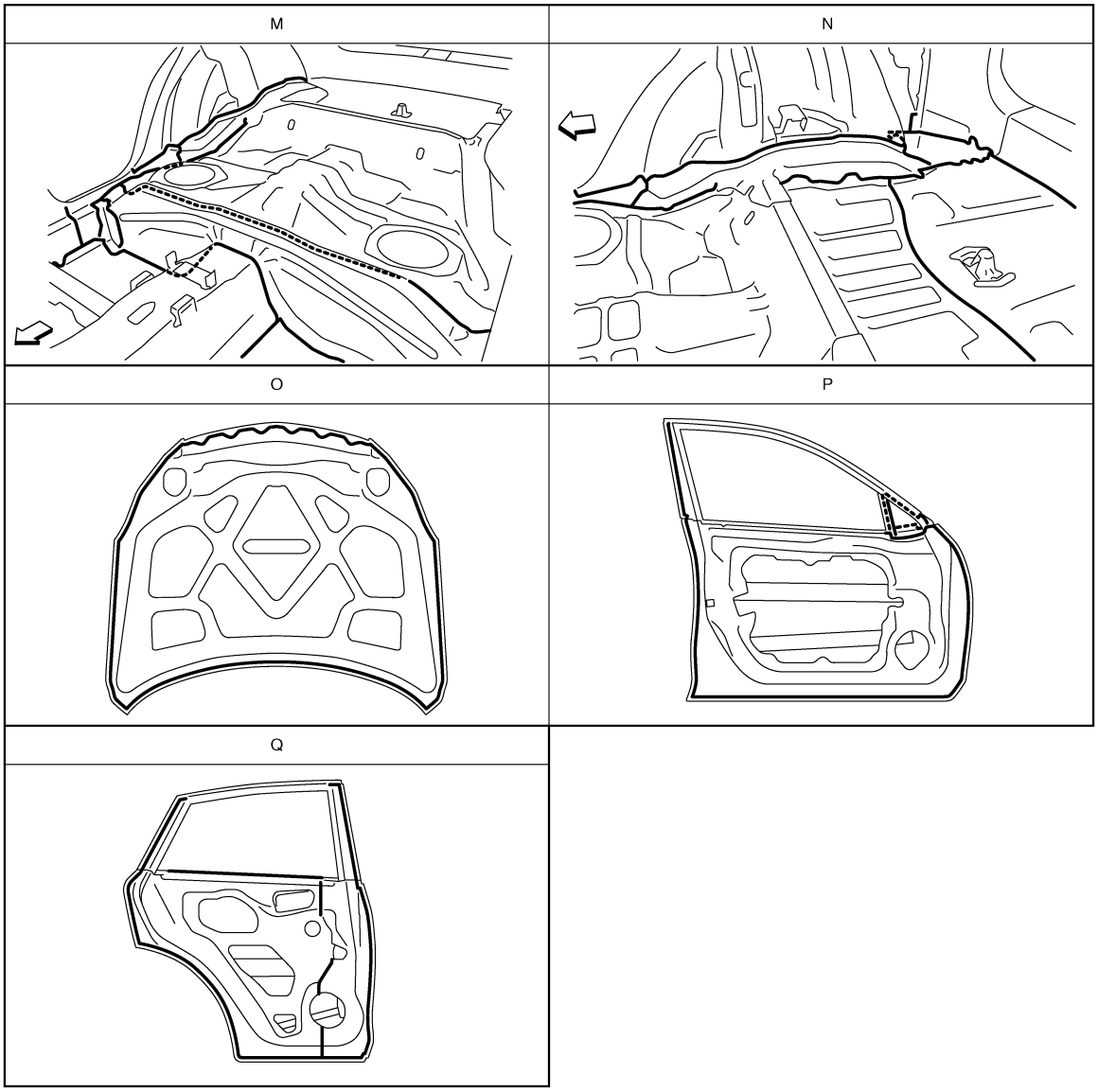
▬ : Sealed portions



JSKIA0591ZZ

⇦ : Vehicle front

▬ : Sealed portions



JSKIA0588ZZ

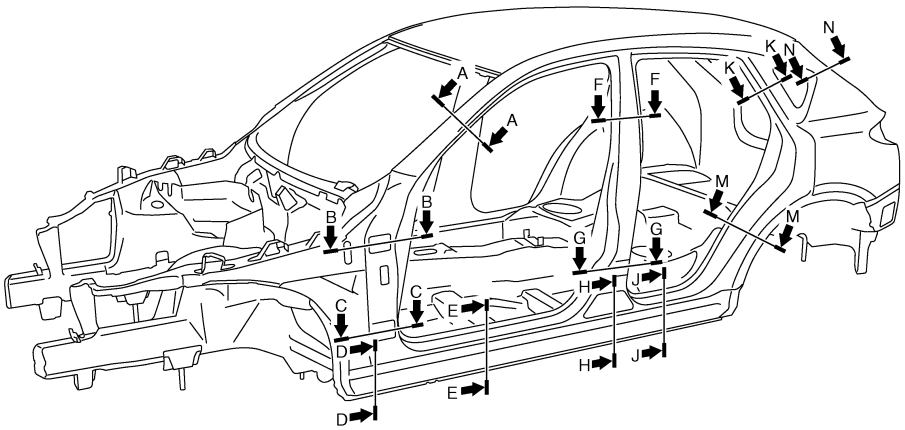
⇦ : Vehicle front

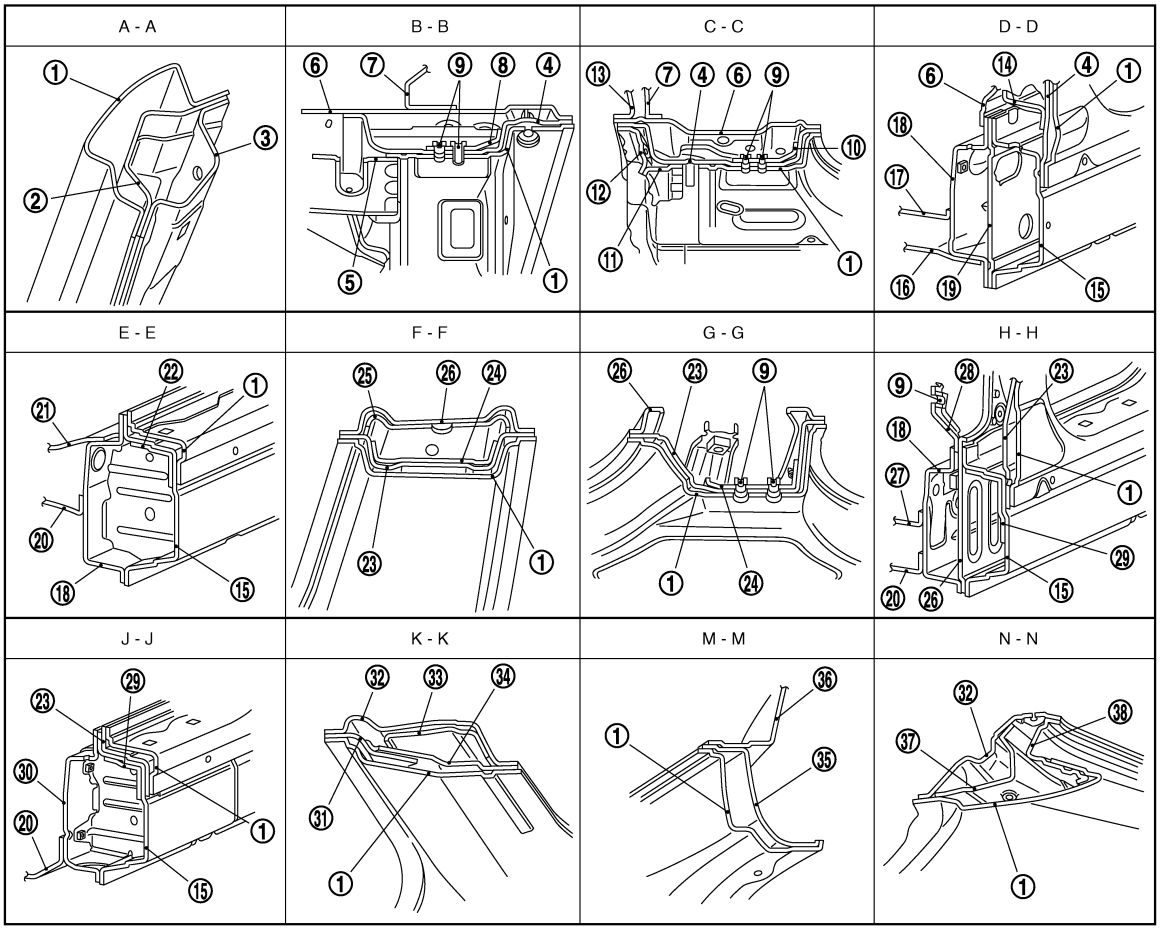
▬ : Sealed portions

BODY CONSTRUCTION

Body Construction

INFOID:0000000003134495





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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 hinge plate
9. Weld nut

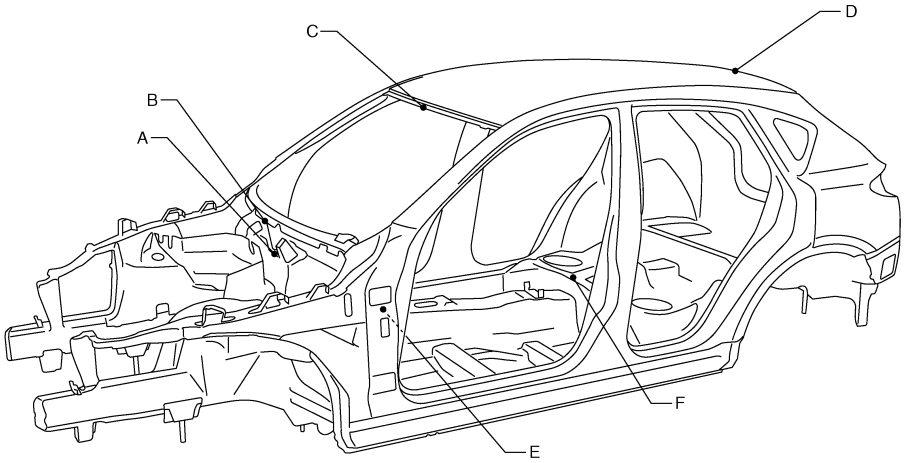
10. Lower hinge plate
11. Rear hoodledge reinforcement
12. Hoodledge reinforcement gusset
13. Lower dash crossmember
14. Lower front pillar gusset
15. Outer sill reinforcement
16. Front side member outrigger
17. Lower dash
18. Inner sill
19. Lower front pillar reinforcement
20. Front floor
21. Front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

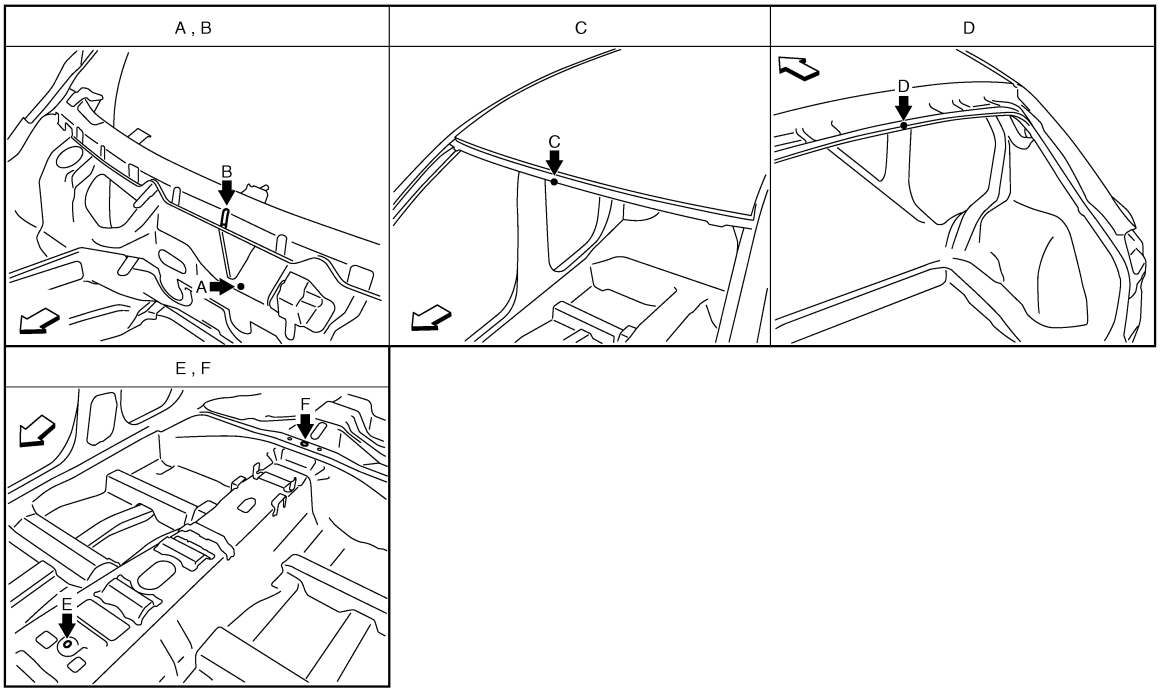
BODY ALIGNMENT

Body Center Marks

INFOID:0000000003134496

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





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⇦ : Vehicle front

Unit: mm (in)

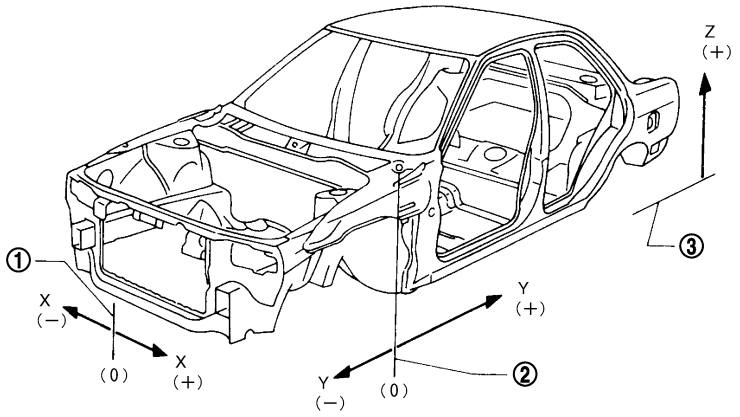
Points	Portion	Marks
A	Upper dash	Embossment
B	Upper dash crossmember	Bead
C	Front roof	Embossment
D	Rear roof	Indent

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:0000000003134498

- 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)]



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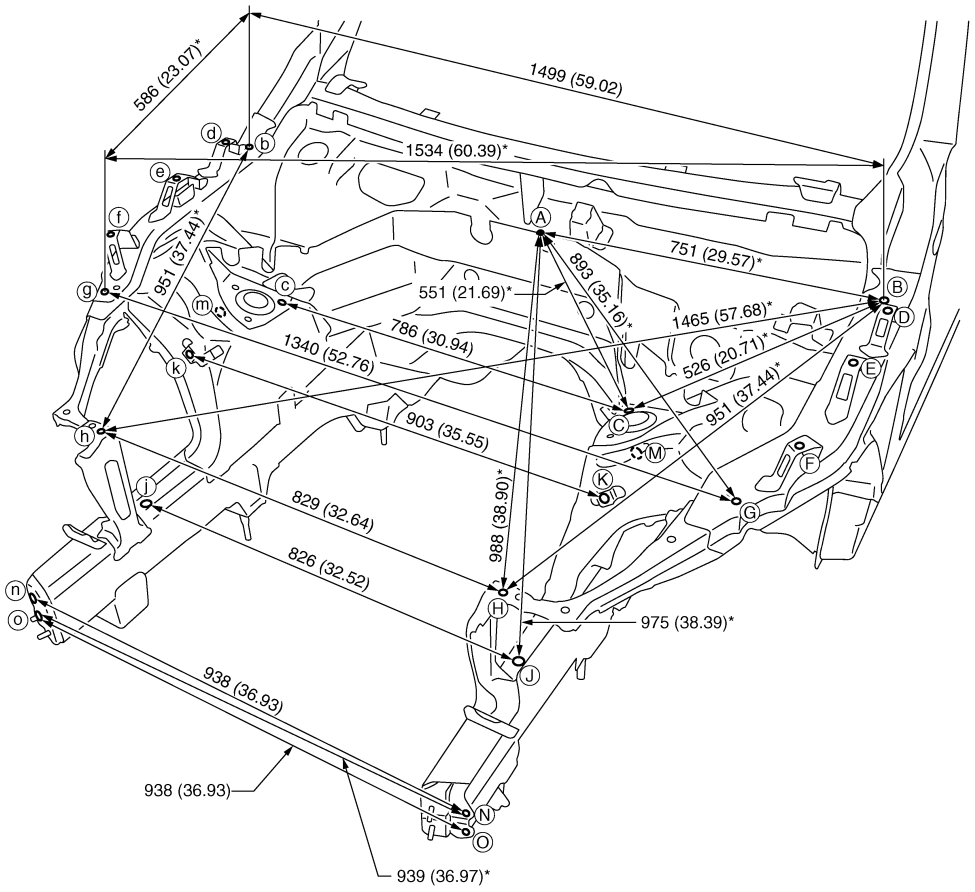
1. Vehicle center
2. Front axle center
3. Imaginary base line

Engine Compartment

INFOID:0000000003134499

Measurement

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



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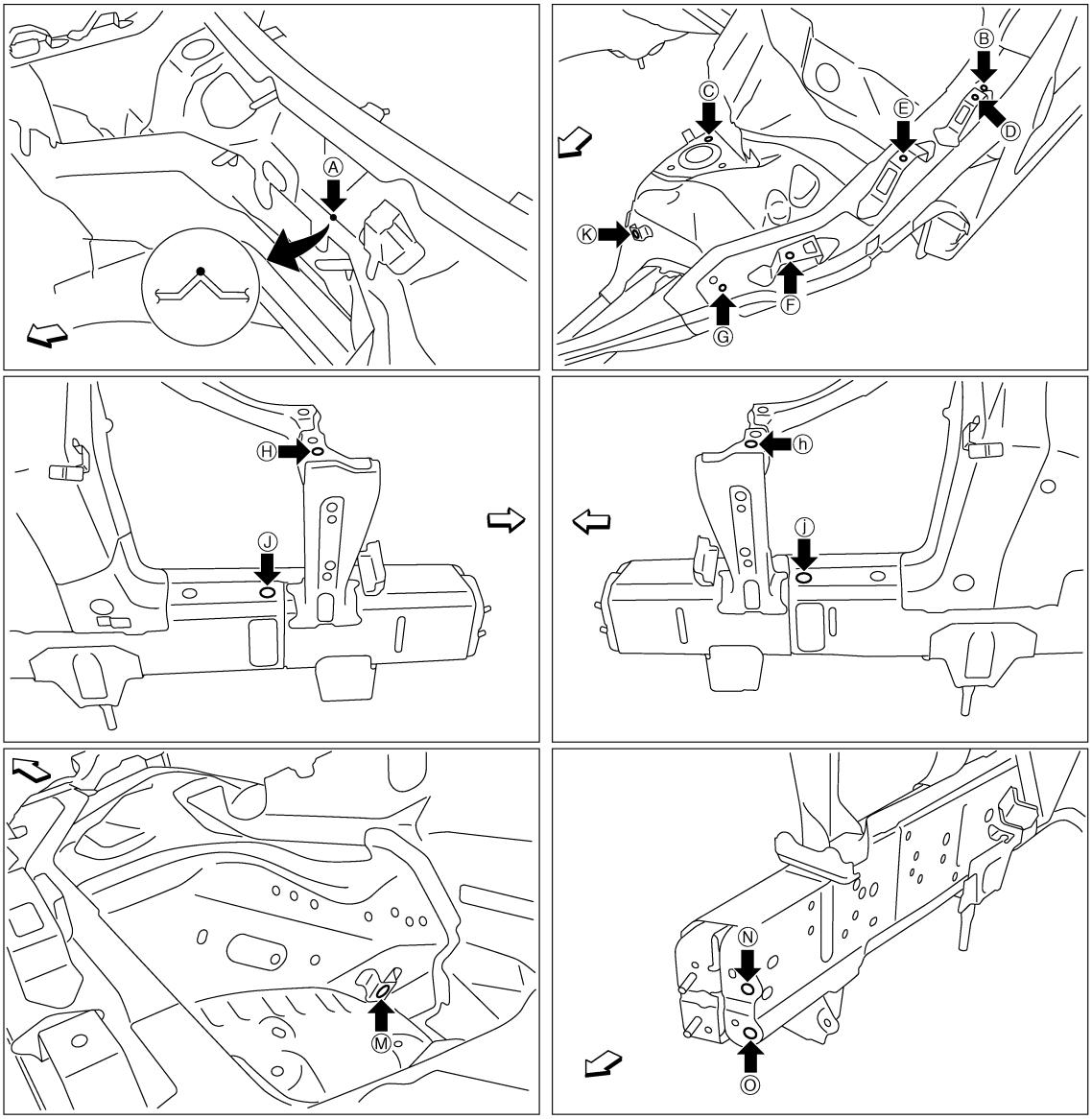
Unit: mm (in)

«The others»

Unit: mm (in)

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
A - E	797 (31.38)*		B - d	1514 (59.61)*		C - k	875 (34.45)*		F - f	1471 (57.91)	
A - D	770 (30.31)*		B - E	246 (9.69)*		D - d	1525 (60.04)		M - m	903 (35.55)	
A - F	894 (35.20)*		B - e	1520 (59.84)*		D - F	435 (17.13)*				
B - c	1206 (47.48)*		B - F	493 (19.41)*		D - f	1559 (61.38)*				
B - D	70 (2.76)*		B - f	1565 (61.61)*		E - e	1502 (59.13)				

Measurement Points



JSKIA0562ZZ

⇦ : Vehicle front

Unit: mm (in)

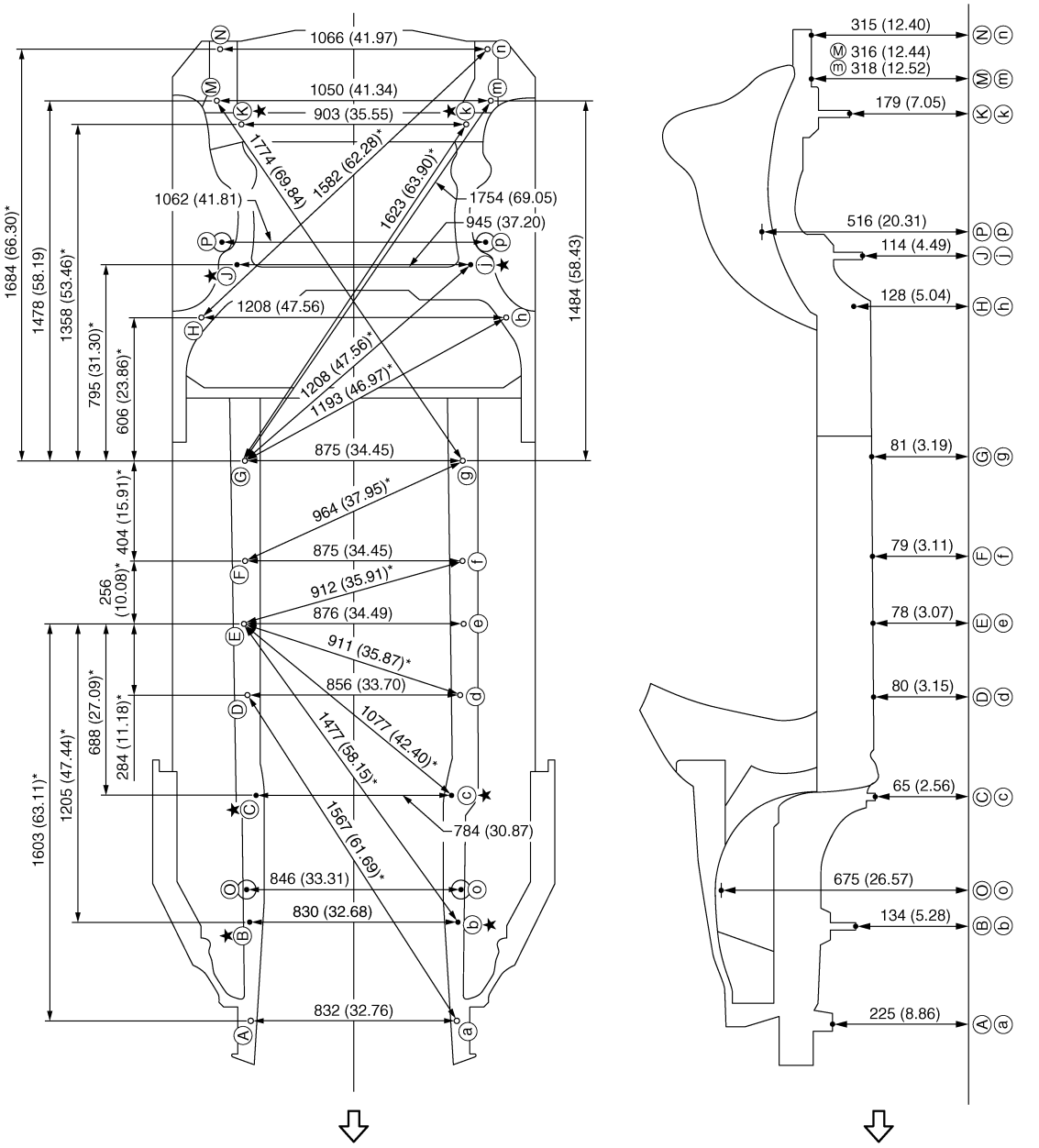
Point	Material	Point	Material
A	Upper dash positioning mark of center positioning mark	H, h	Radiator core stay installing hole center ϕ12 (0.47)
B, b, G, g	Hoodledge reinforcement hole center B, b: ϕ9 (0.35) G, g: ϕ5 (0.20)	J, j	Front side member hole center ϕ20 (0.79)
C, c	Front strut installing hole center ϕ11 (0.43)	K, k, M, m	Nut holder hole center ϕ16 (0.63)
D, d, E, e, F, f	Front fender installing hole center ϕ7 (0.28)	N, n, O, o	Front bumper stay installing hole center ϕ11 (0.43)

Underbody (2WD)

INFOID:0000000003134500

Measurement

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



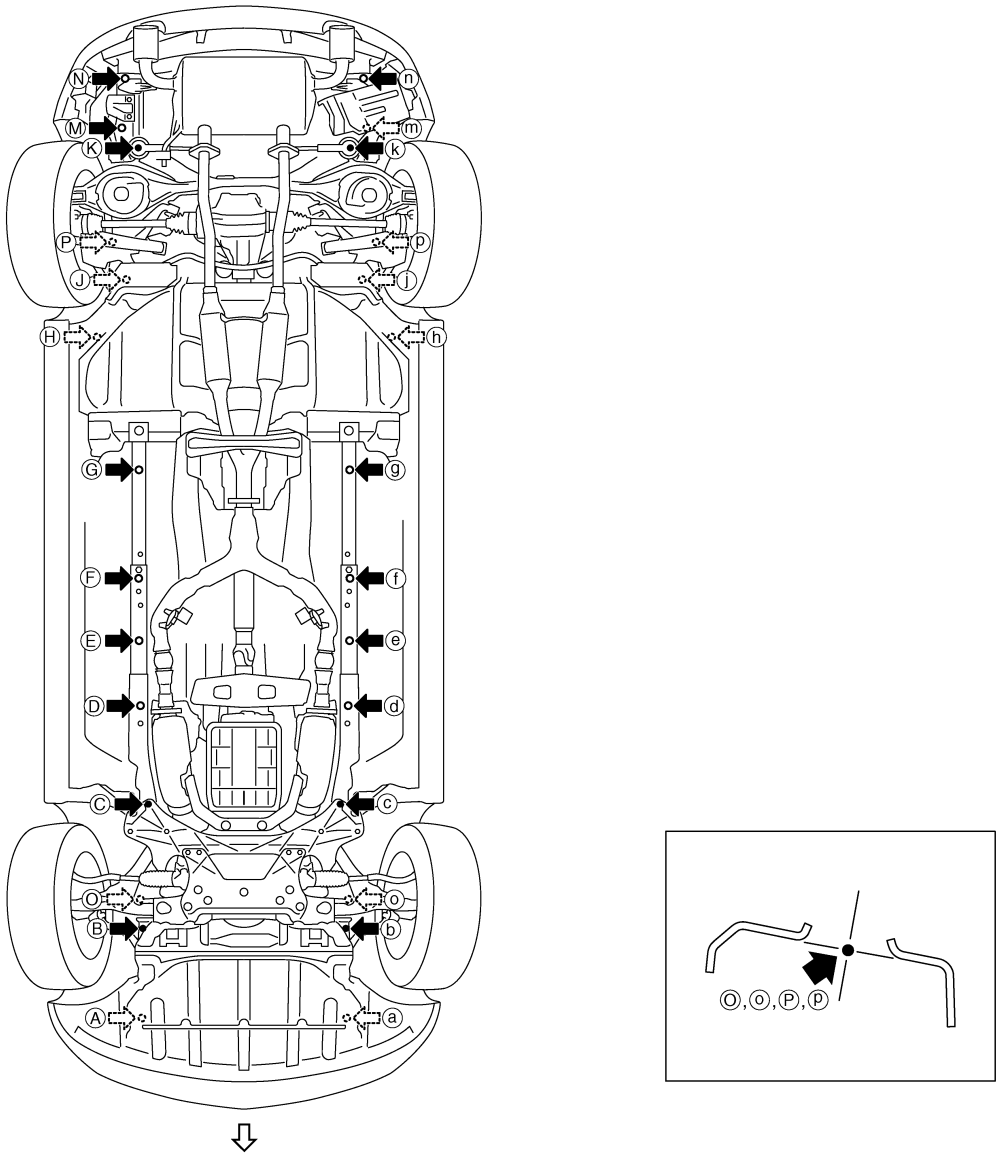
JSKIA0563GB

Unit: mm (in)

⇦ : Vehicle front

★ : Bolt head

Measurement Points



JSKIA0564ZZ

⇦ : Vehicle front

Unit: mm (in)

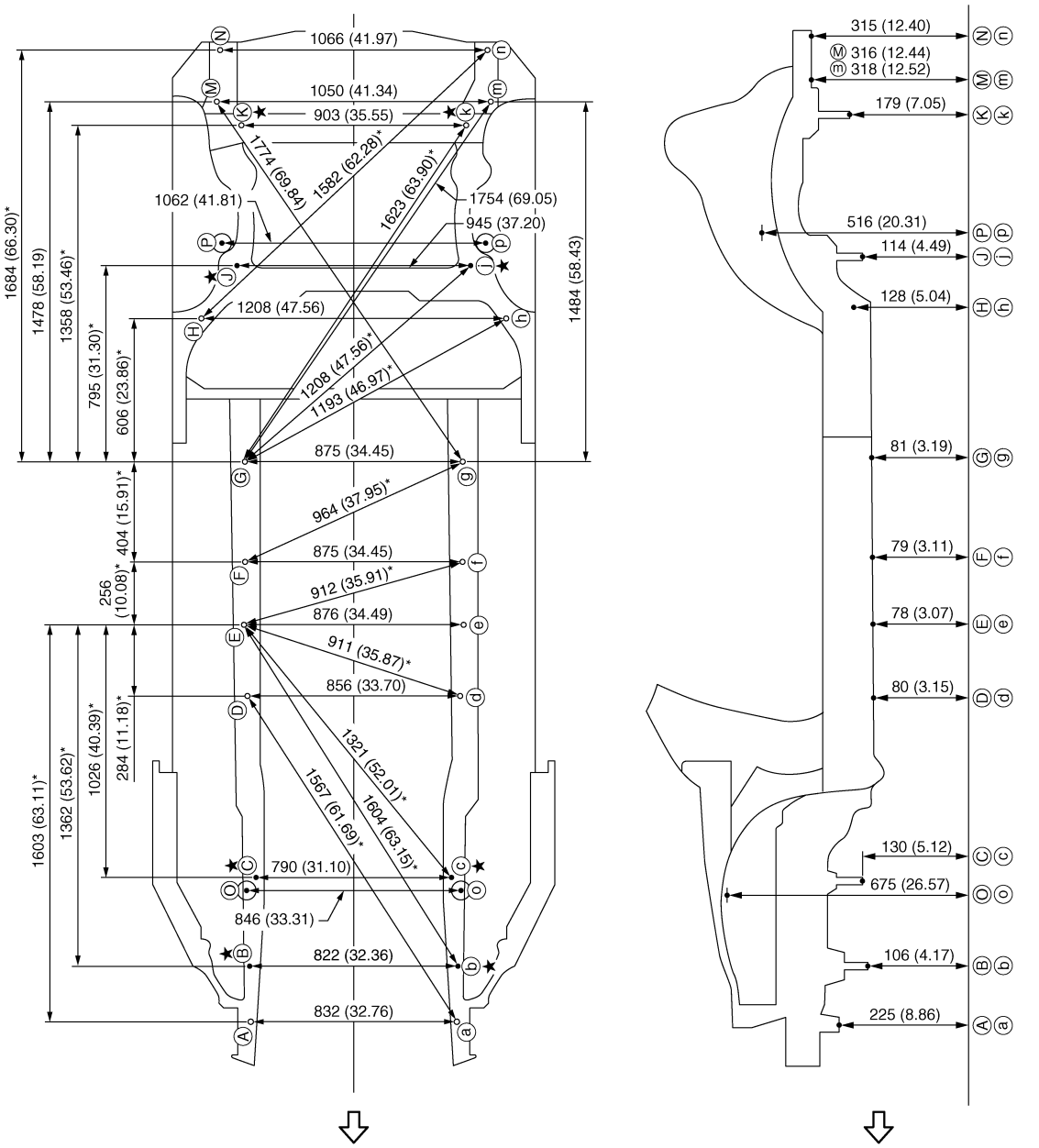
Points	Coordinates			Remarks	Points	Coordinates			Remarks
	X	Y	Z			X	Y	Z	
A, a	±416	-496	225	Hole ϕ13 (0.51)	J, j	±473	2554	114	Bolt head
B, b	±415	-104	134	Bolt head	K, k	±452	3114	179	Bolt head
C, c	±392	414	65	Bolt head	M	550	3215	316	Hole ϕ8 (0.31)
D, d	±428	817	80	Hole 16×18 (0.63×0.71)	m	-500	3223	318	Hole ϕ8 (0.31)
E, e	±438	1100	78	Hole ϕ16 (0.63)	N, n	±533	3425	315	Hole ϕ16 (0.63)
F, f	±438	1356	79	Hole ϕ14 (0.55)	O, o	±423	38	675	Hole ϕ50 (1.97)
G, g	±438	1760	81	Hole ϕ16 (0.63)	P, p	±531	2643	516	Hole ϕ64 (2.52)
H, h	±604	2341	128	Hole ϕ13 (0.51)					

Underbody (AWD)

INFOID:0000000003758223

Measurement

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



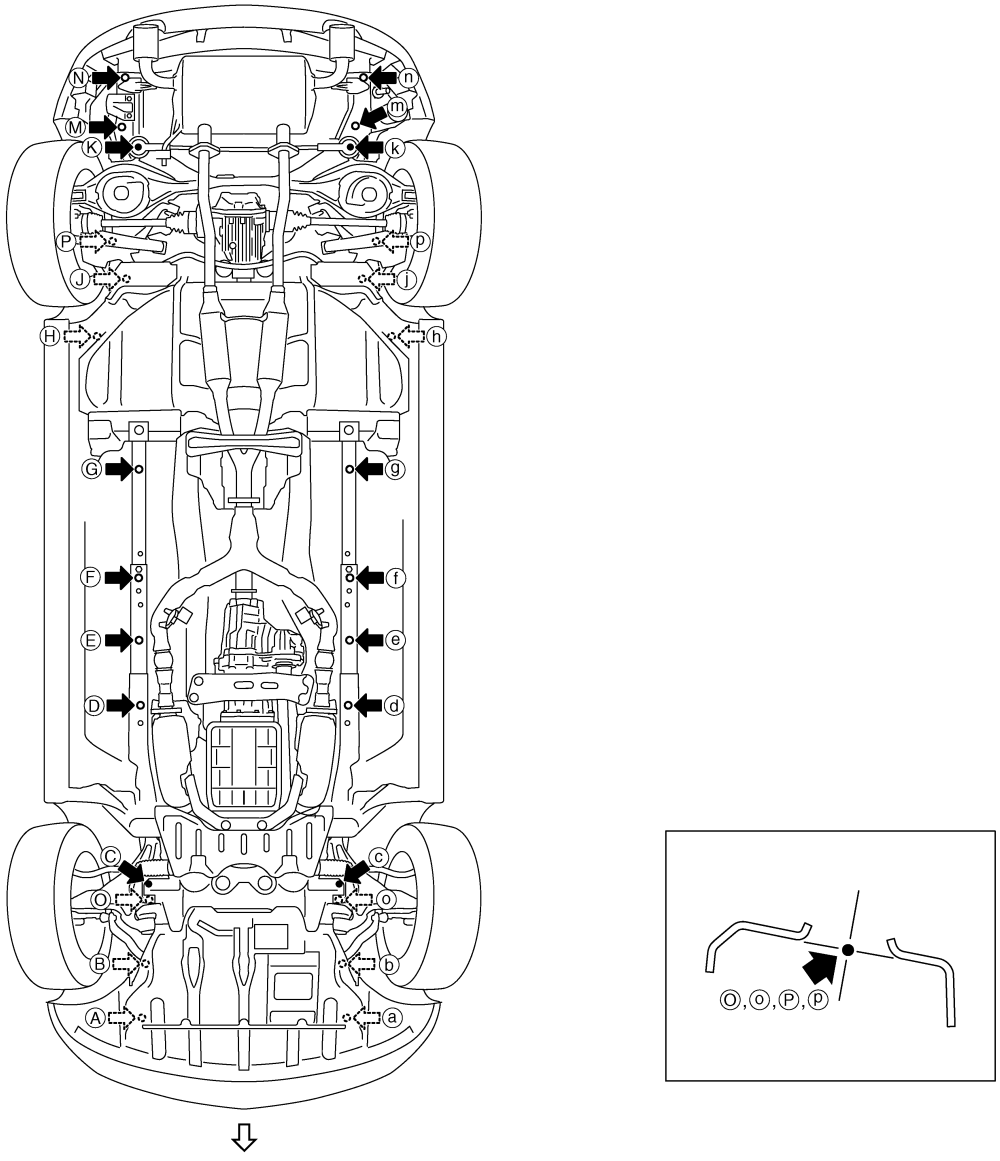
JSKIA0565GB

Unit: mm (in)

⇦ : Vehicle front

★ : Bolt head

Measurement Points



JSKIA0567ZZ

⇦ : Vehicle front

Unit: mm (in)

Points	Coordinates			Remarks	Points	Coordinates			Remarks
	X	Y	Z			X	Y	Z	
A, a	±416	-496	225	Hole ϕ13 (0.51)	J, j	±473	2554	114	Bolt head
B, b	±411	-261	106	Bolt head	K, k	±452	3114	179	Bolt head
C, c	±395	76	130	Bolt head	M	550	3215	316	Hole ϕ8 (0.31)
D, d	±428	817	80	Hole 16×18 (0.63×0.71)	m	-500	3223	318	Hole ϕ8 (0.31)
E, e	±438	1100	78	Hole ϕ16 (0.63)	N, n	±533	3425	315	Hole ϕ16 (0.63)
F, f	±438	1356	79	Hole ϕ16 (0.63)	O, o	±423	38	675	Hole ϕ50 (1.97)

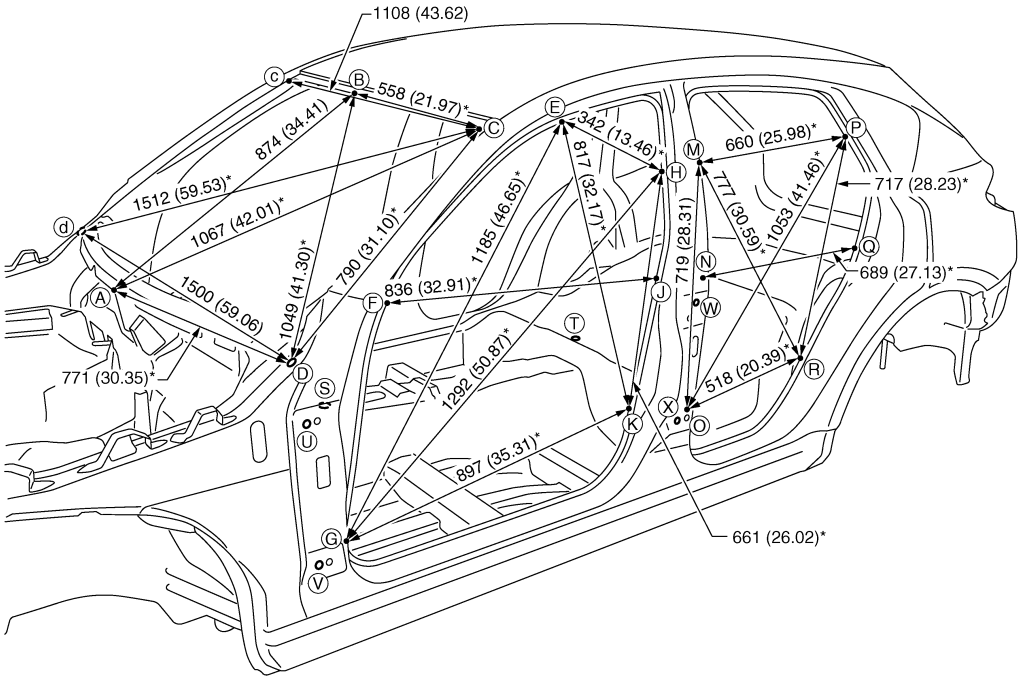
G, g	±438	1760	81	Hole ϕ16 (0.63)	P, p	±531	2643	516	Hole ϕ64 (2.52)
H, h	±604	2341	128	Hole ϕ13 (0.51)					

Passenger Compartment

INFOID:0000000003134501

Measurement

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



JSKIA0568GB

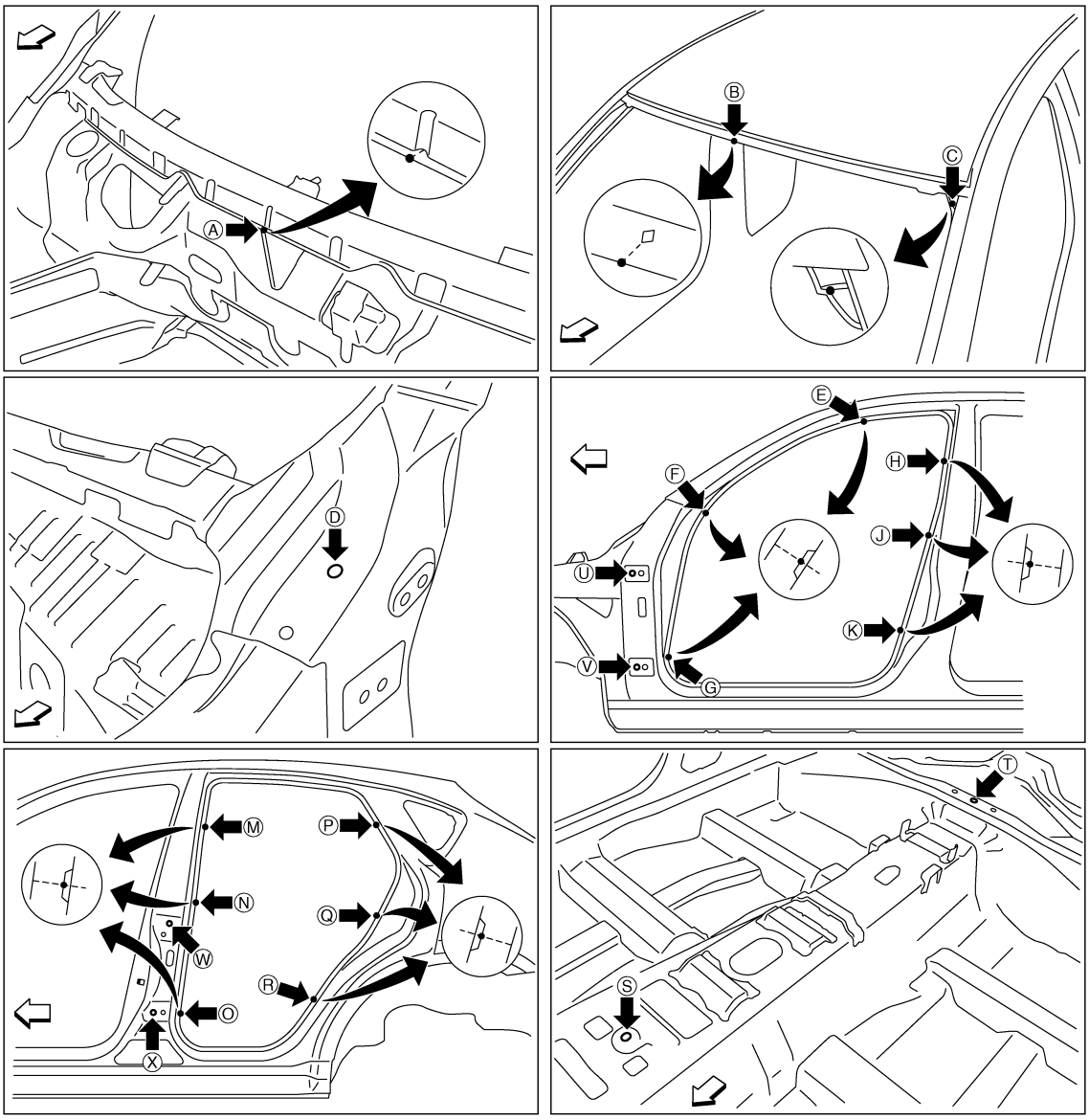
Unit: mm (in)

«The others»

Unit: mm (in)

Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo	Point	Dimension	Memo
E - e	1183 (46.57)		J - j	1459 (57.44)		P - p	1280 (50.39)		T - N	864 (34.02)*	
E - g	1776 (69.92)*		K - k	1485 (58.46)		P - r	1547 (60.91)*		T - O	752 (29.61)*	
E - h	1302 (51.26)*		M - m	1325 (52.17)		Q - q	1436 (56.54)		T - P	1136 (44.72)*	
E - k	1557 (61.30)*		M - o	1562 (61.50)*		R - r	1469 (57.83)		T - Q	994 (39.13)*	
F - f	1424 (56.06)		M - p	1460 (57.48)*		S - E	1206 (47.48)*		T - R	805 (31.69)*	
F - j	1666 (65.59)*		M - r	1597 (62.87)*		S - F	894 (35.20)*		U - W	1182 (46.54)*	
G - g	1478 (58.19)		N - n	1452 (57.17)		S - G	764 (30.08)*		U - X	1182 (46.54)*	
G - h	1907 (75.08)*		N - q	1600 (62.99)*		S - H	1311 (51.61)*		V - W	1247 (49.09)*	
G - k	1732 (68.19)*		O - o	1451 (57.13)		S - J	1168 (45.98)*		V - X	1150 (45.28)*	
H - h	1333 (52.48)		O - p	1722 (67.80)*		S - K	1024 (40.31)*				
H - k	1554 (61.18)*		O - r	1550 (61.02)*		T - M	995 (39.17)*				

Measurement Points



JSKIA0569ZZ

⇦ : Vehicle front

Unit: mm (in)

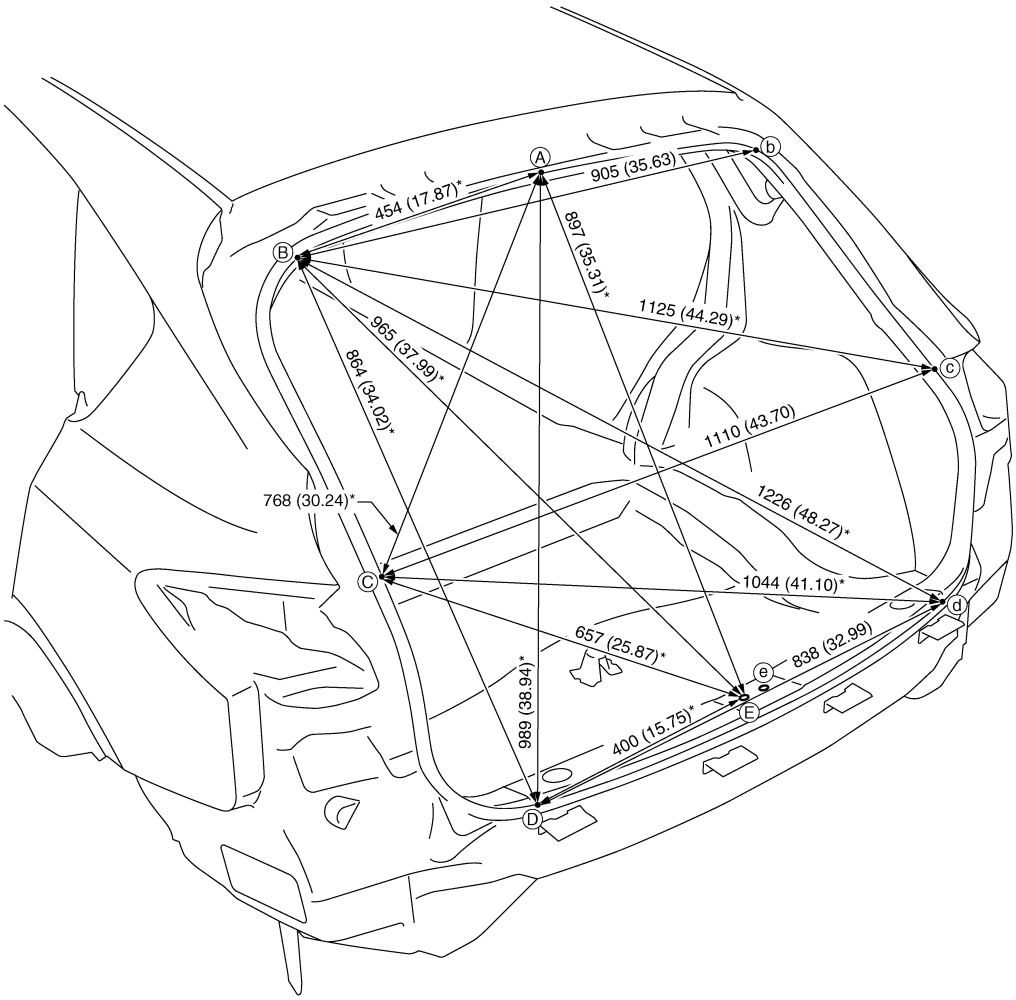
Point	Material	Point	Material
A	Upper dash crossmember flange end of center positioning mark	H, h, J, j, K, k, M, m, N, n, O, o	Center pillar indent
B	Roof flange end of center positioning mark	P, p, Q, q, R, r	Rear fender indent
C, c	Front pillar reinforcement joggle	S	Trans control reinforcement hole center of center positioning mark 12×14 (0.47×0.55)
D, d	Hood hinge installing hole center ϕ6 (0.24)	T	Rear seat crossmember reinforcement hole center of center positioning mark ϕ5 (0.20)
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)

Rear Body

INFOID:0000000003134502

Measurement

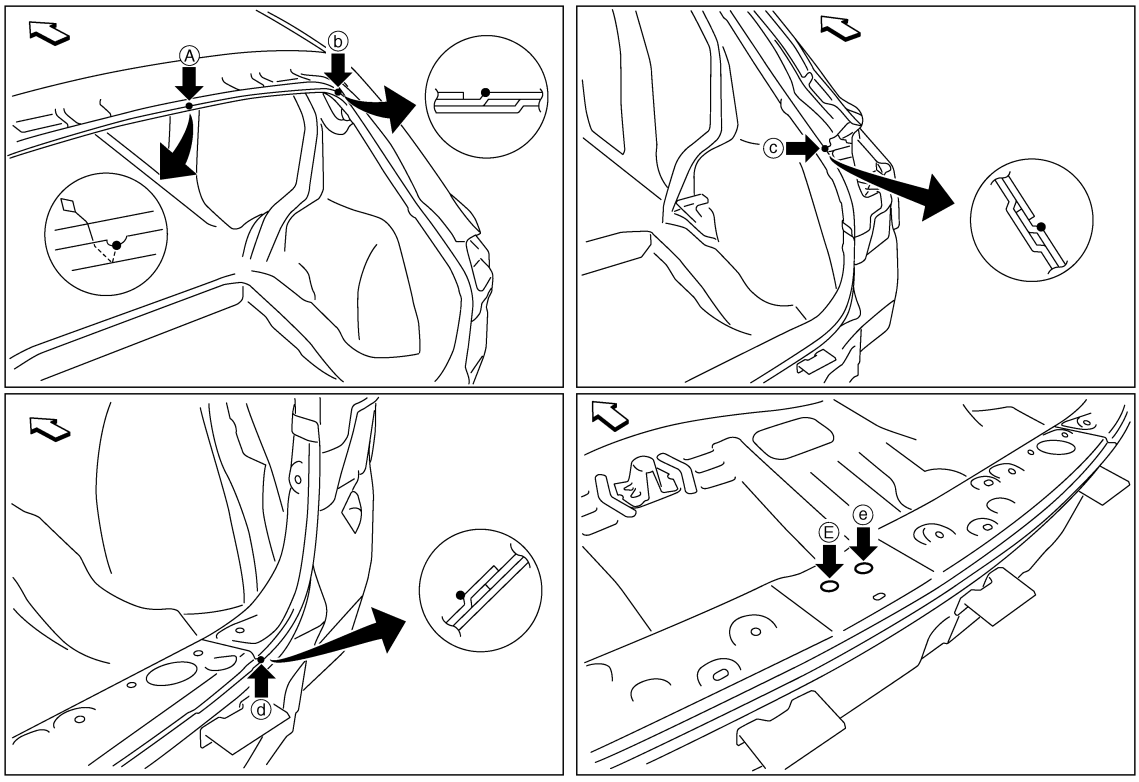
Dimensions marked with "*" indicate symmetrically identical dimensions on both right and left hand of the vehicle.



JSKIA0570GB

Unit: mm (in)

Measurement Points



JSKIA0571ZZ

⇦ : Vehicle front

Unit: mm (in)

Point	Material	Point	Material
A	Roof indent of center positioning mark	D, d	Rear end crossmember joggle
B, b	Back pillar main joggle	E, e	Back door striker installing hole center ϕ14 (0.55)
C, c	Inner back pillar joggle		

REPAIRING HIGH STRENGTH STEEL

High Strength Steel (HSS)

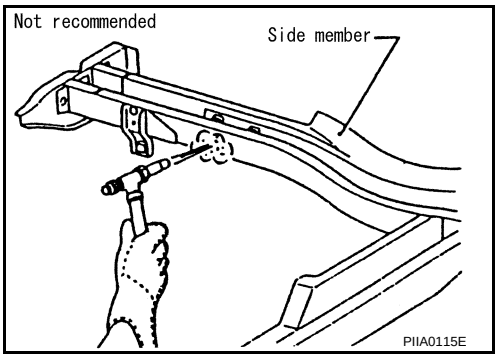
INFOID:0000000003134503

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:

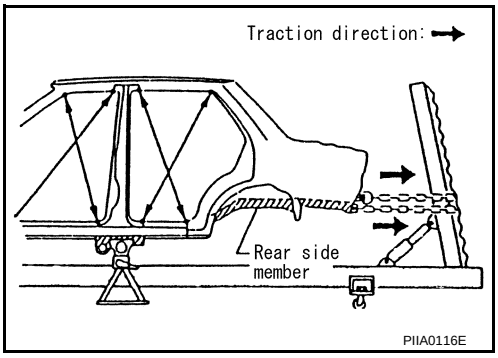
Tensile strength	Major applicable parts
370 - 590 MPa	• Front strut housing • Hoodledge reinforcement • Upper front hoodledge • Lower dash • Lower dash crossmember assembly • Front roof rail • Upper inner front pillar assembly • Inner center pillar • Inner sill • Upper & lower outer rear wheelhouse extension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

Read the following precautions when repairing HSS:

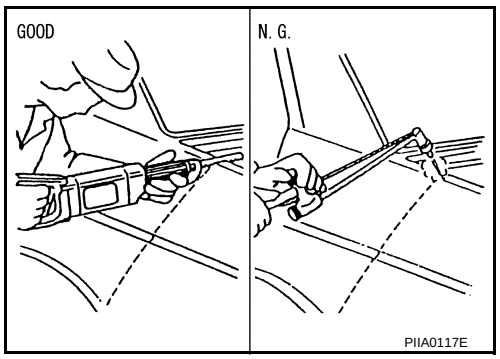
1. Additional points to consider
   - The repair of reinforcements (such as side members) by heating is not recommended since it may weaken the component. When heating is unavoidable, do not heat HSS parts above 550°C (1,022°F).
     Verify heating temperature with a thermometer.
     (Crayon-type and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



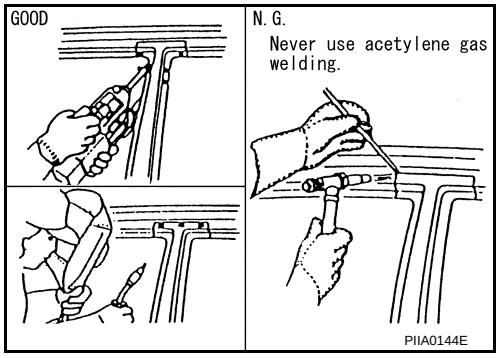
   - When straightening body panels, use caution in pulling any HSS panel. Because HSS is very strong, pulling may cause deformation in adjacent portions of the body. In this case, increase the number of measuring points, and carefully pull the HSS panel.



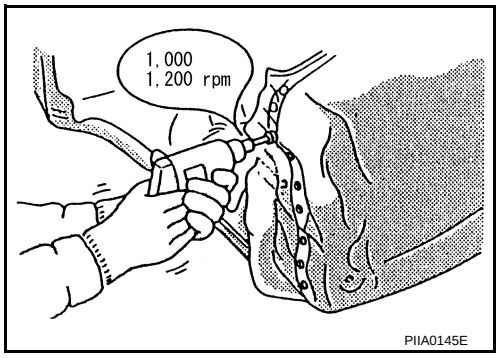
- When cutting HSS panels, avoid gas (torch) cutting if possible. Instead, use a saw to avoid weakening surrounding areas due to heat. If gas (torch) cutting is unavoidable, allow a minimum margin of 50 mm (1.97in).



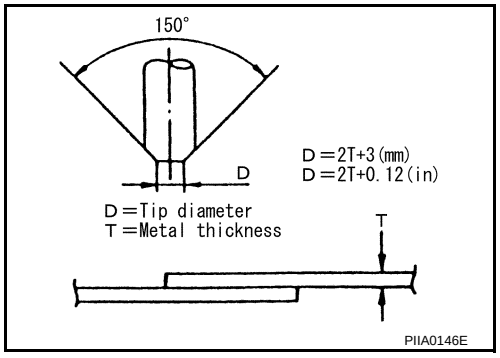
- When welding HSS panels, use spot welding whenever possible in order to minimize weakening surrounding areas due to heat.
  If spot welding is impossible, use MIG. welding. Do not use gas (torch) for welding because it is inferior in welding strength.



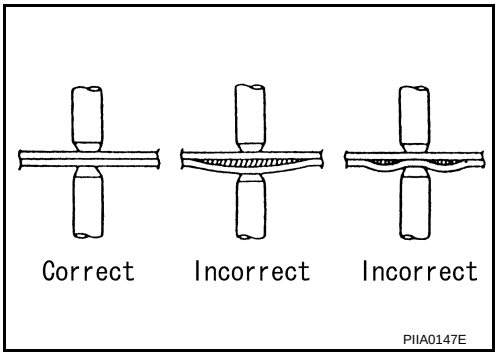
- The spot weld on HSS panels is harder than that of an ordinary steel panel.
  Therefore, when cutting spot welds on a HSS panel, use a low speed high torque drill (1,000 to 1,200 rpm) to increase drill bit durability and facilitate the operation.



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.



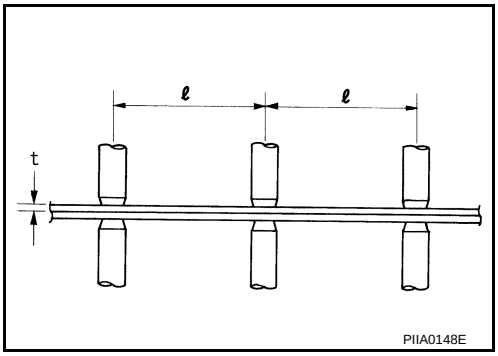
- The panel surfaces must fit flush to each other, leaving no gaps.



- 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



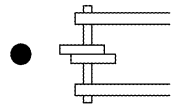
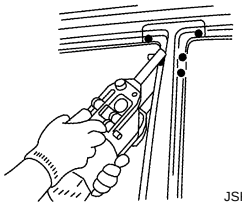
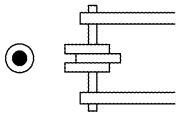
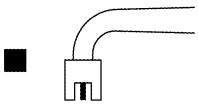
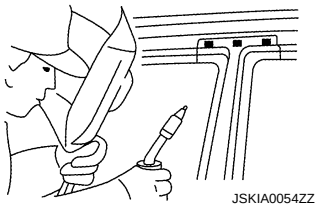
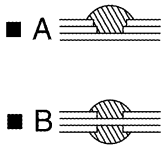
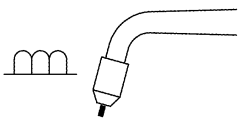
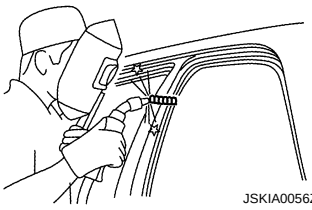
REPLACEMENT OPERATIONS

Description

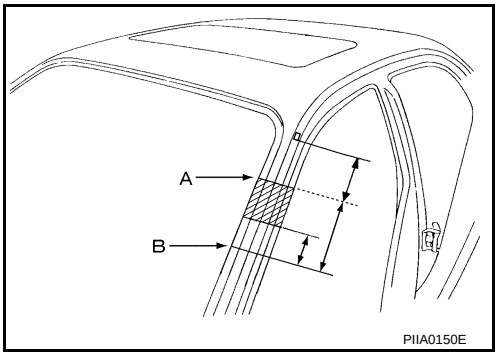
INFOID:0000000003757467

- 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.

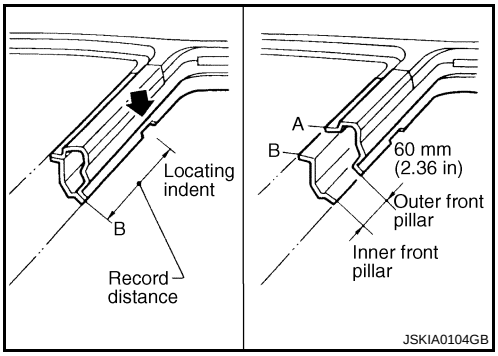
The symbols used in this section for welding operations are shown below.

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

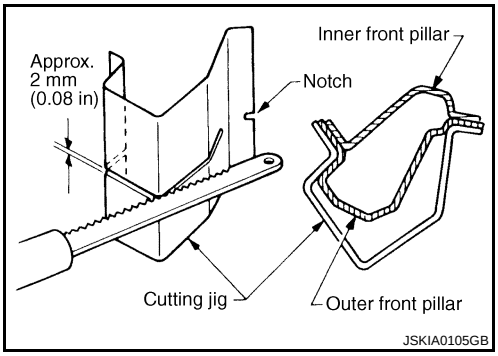
- Front pillar butt joint can be determined anywhere within shaded area as shown in the figure. The best location for the butt joint is at position A due to the construction of the vehicle. Refer to the front pillar section.



- 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.

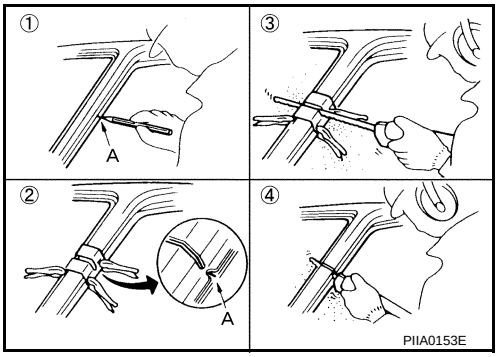


- Prepare a cutting jig to make outer pillar easier to cut. Also, this will permit service part to be accurately cut at joint position.



- 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.

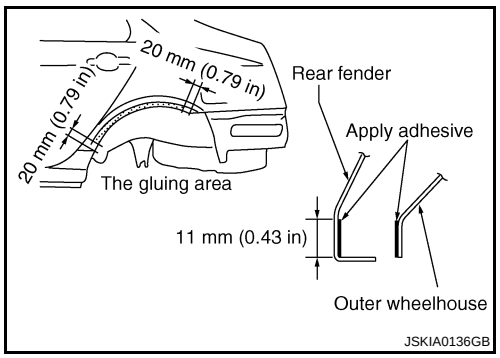
CAUTION:

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

Procedure of the hemming process

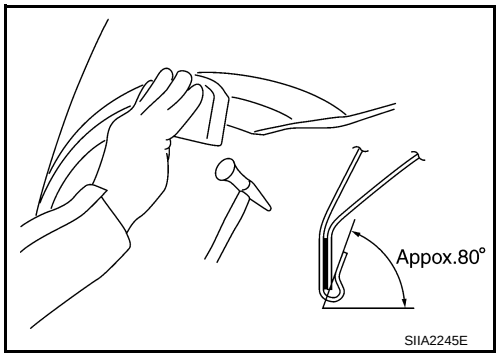
- Peel off old bonding material on the surface of outer wheelhouse and clean thoroughly.
- Peel off a primer coat in the specified area where new adhesive is to be applied on rear fender (the replacing part).
- Apply new adhesive to both specified areas of outer wheelhouse and rear fender.

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

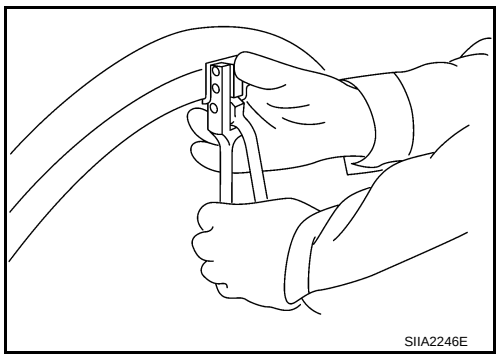


- Attach rear fender to the body of the car, and weld the required part except the hemming part.

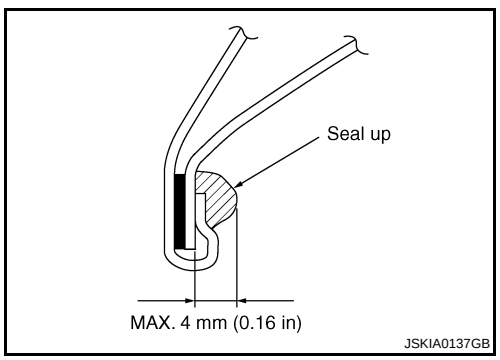
- Bend the welded part starting from the center of the wheel arch gradually with a hammer and a dolly. (Also hem the end of the flange.)
- Hemming with a hammer is conducted to an approximate angle of 80 degrees.



- 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.

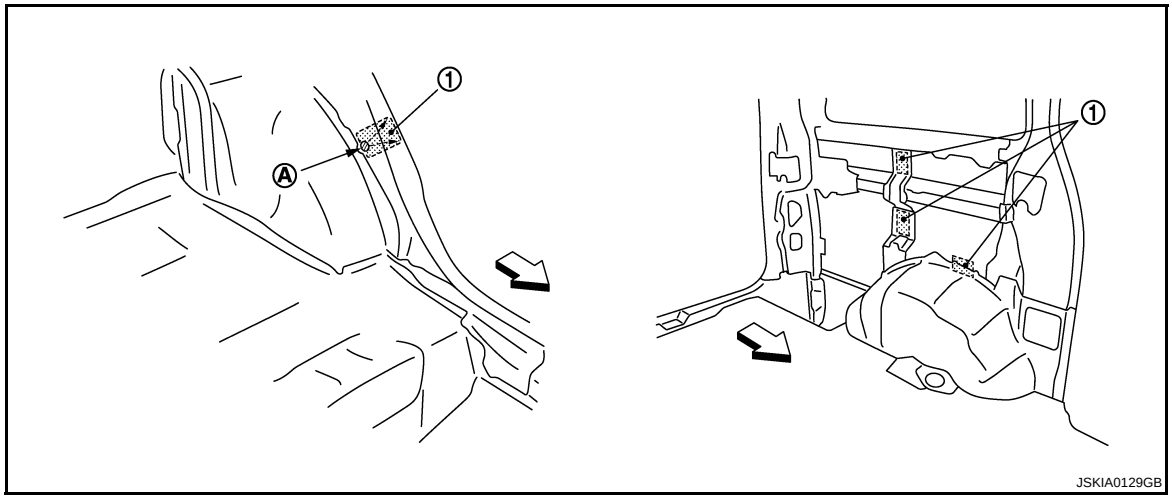
Urethane foam applications

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.

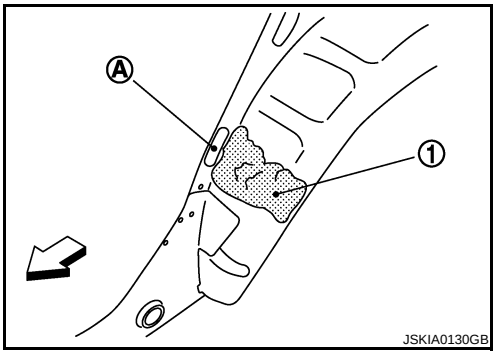
- Remove foam material remaining on vehicle side.
- Clean area in which foam was removed.
- Install service part.

- 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.



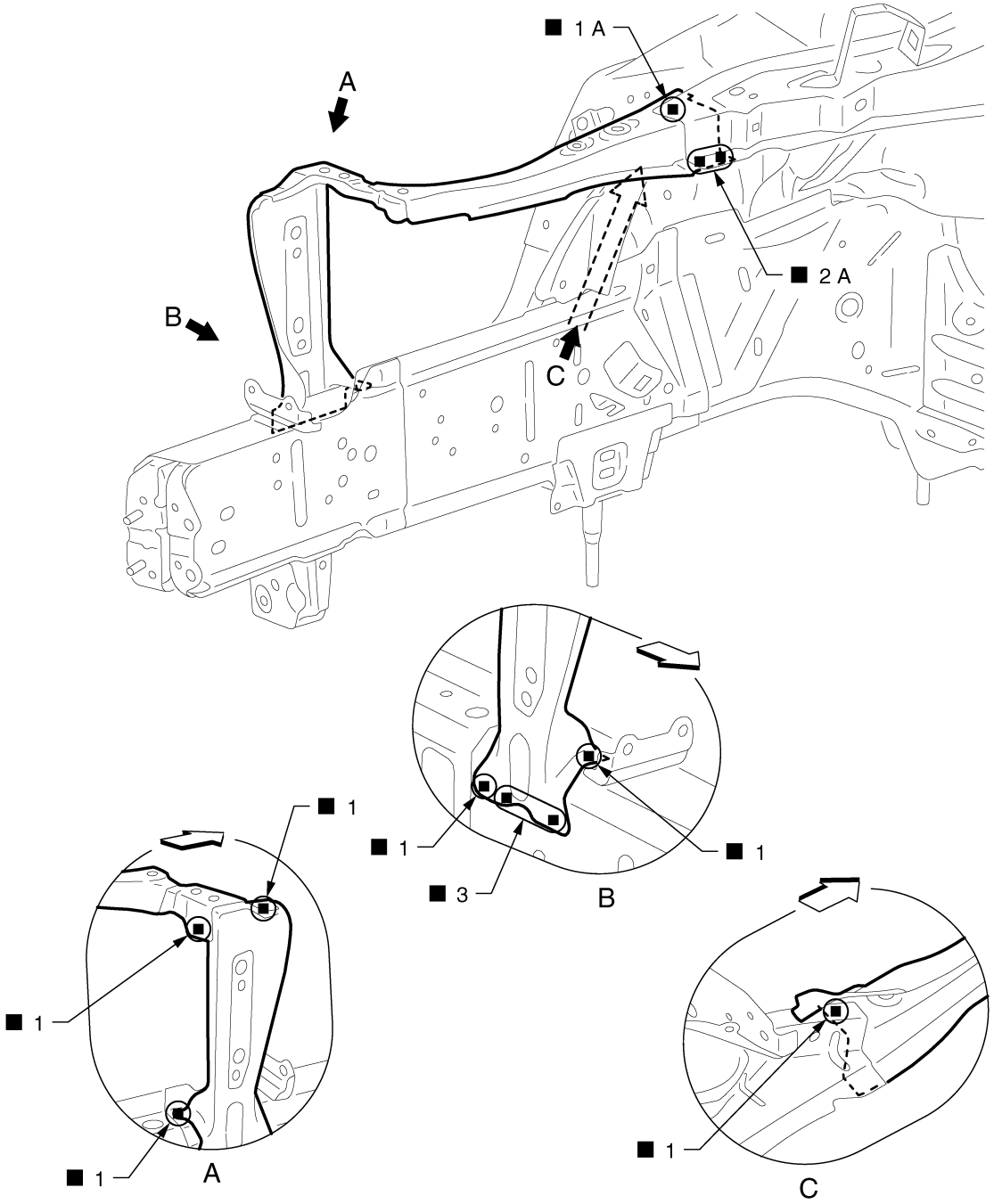
1. Urethane foam
A. Fill while avoiding flange area
⇦ : Vehicle front

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:0000000003757468



⇦ : Vehicle front

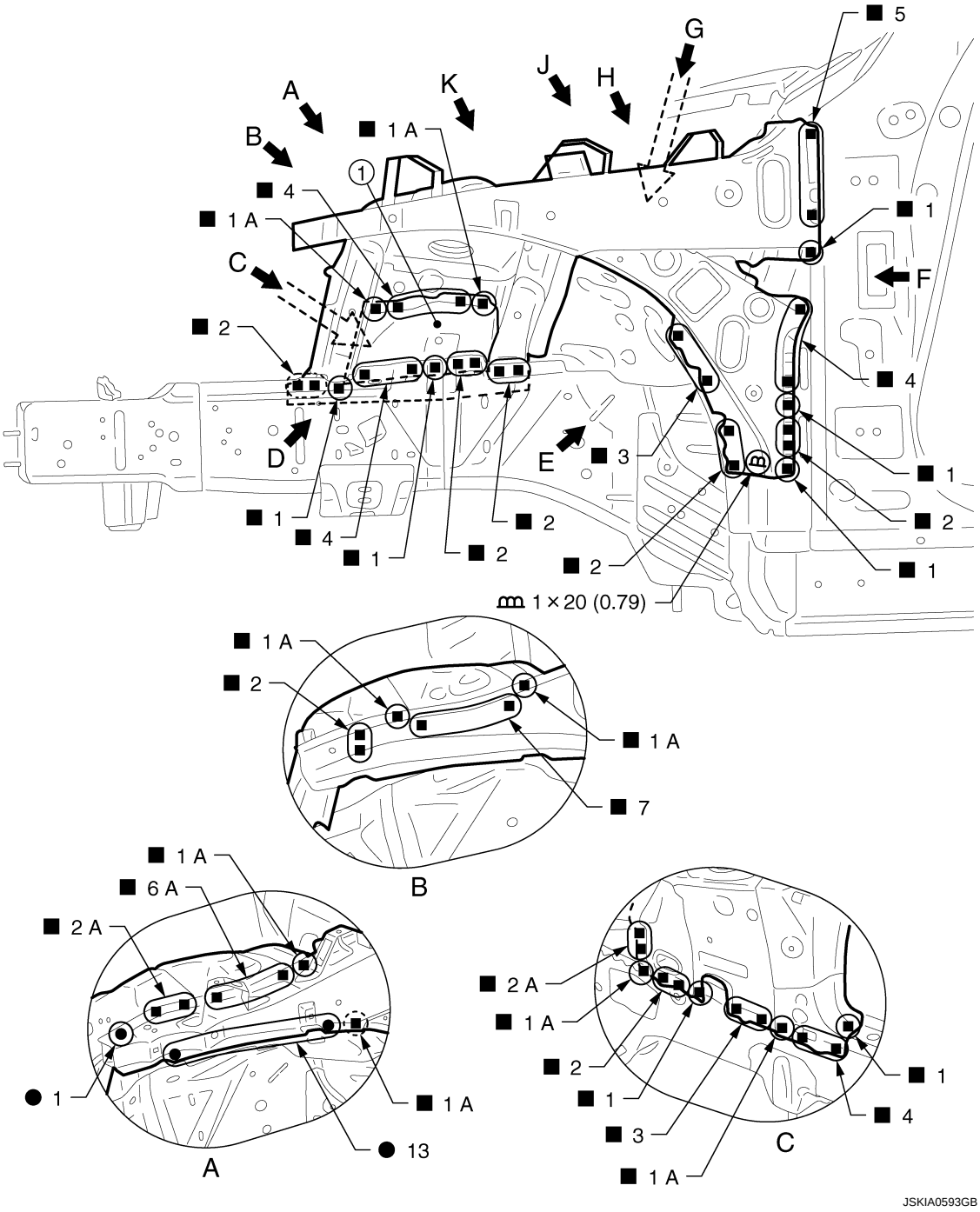
Replacement parts

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

Hoodledge

INFOID:0000000003757469

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



1. Front side member connector assembly

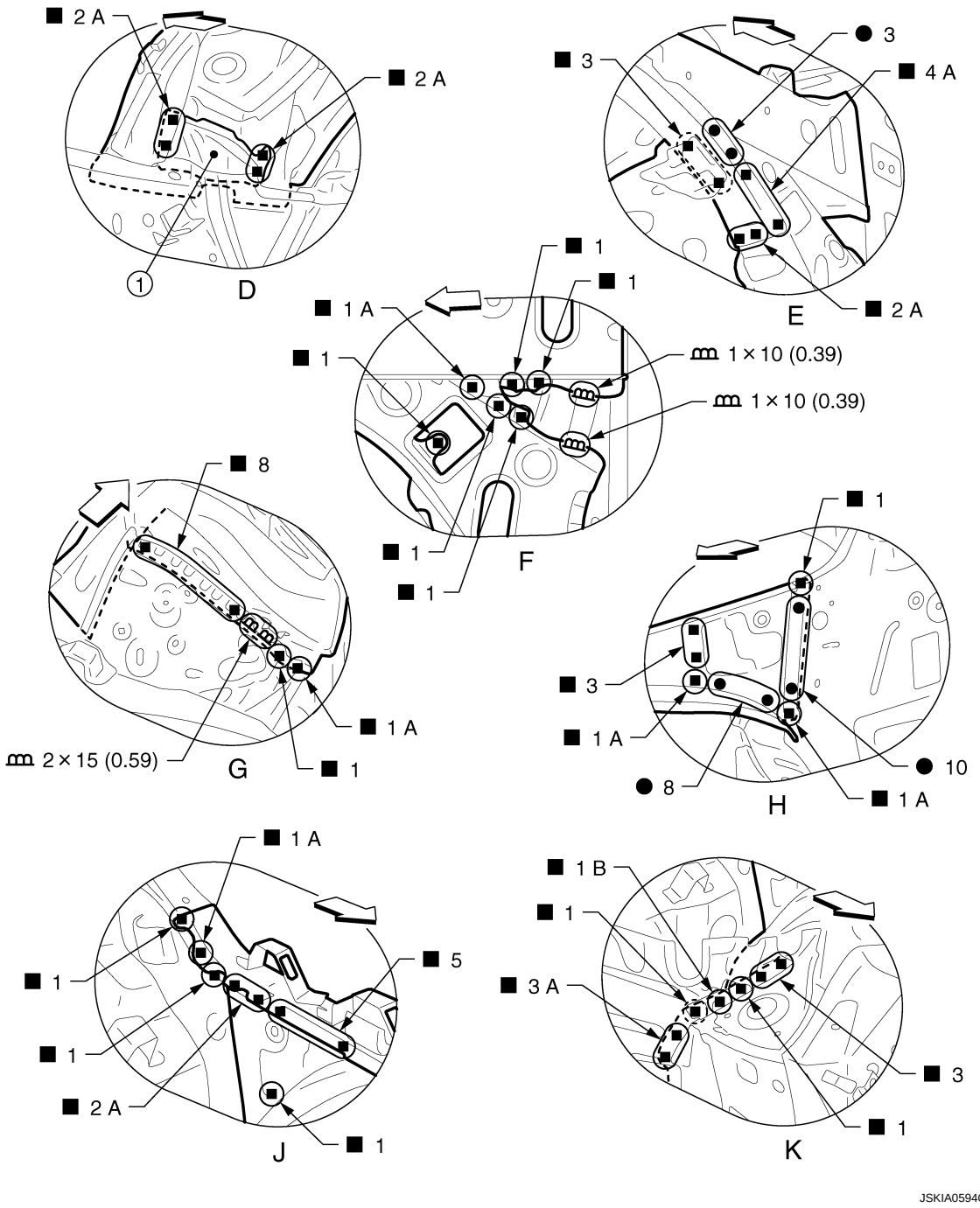
Unit: mm (in)

⇦ : Vehicle front

Replacement parts

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

View B: Before installing hoodledge reinforcement



JSKIA0594GB

1. Front side member connector assembly

Unit: mm (in)

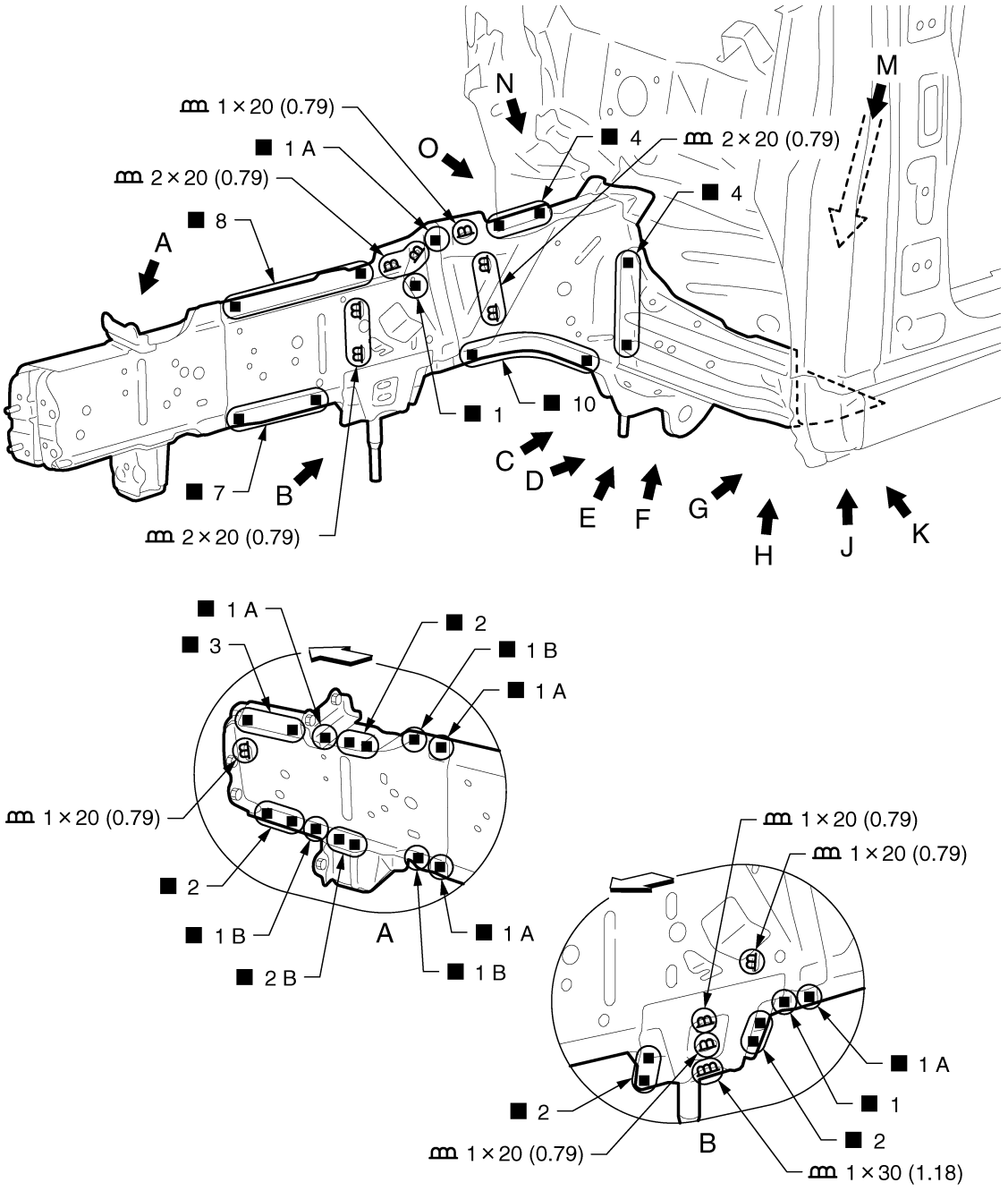
⇦ : Vehicle front

View H: Before installing hoodledge reinforcement

Front Side Member (2WD)

INFOID:0000000003757471

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



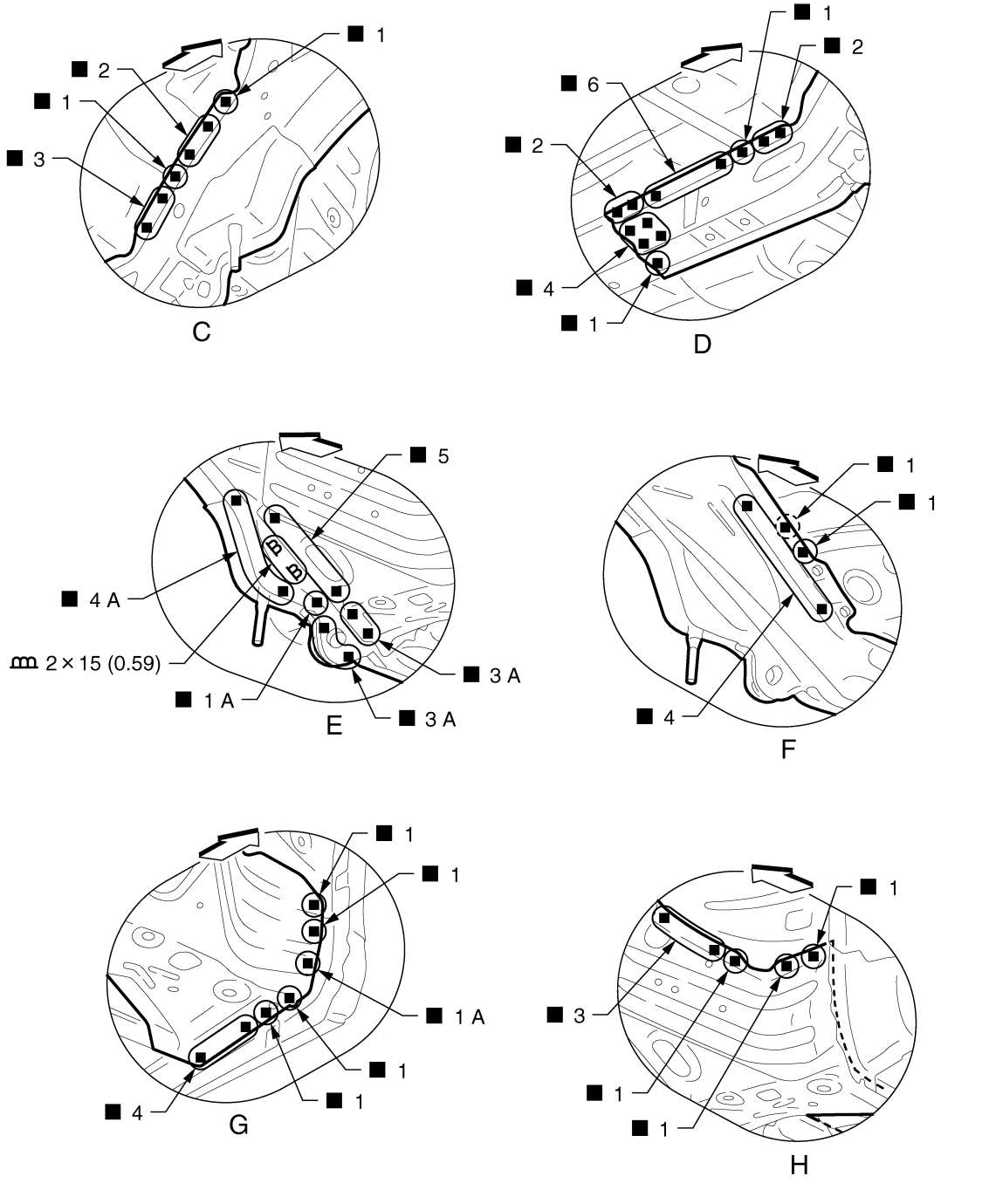
JSKIA0595GB

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)

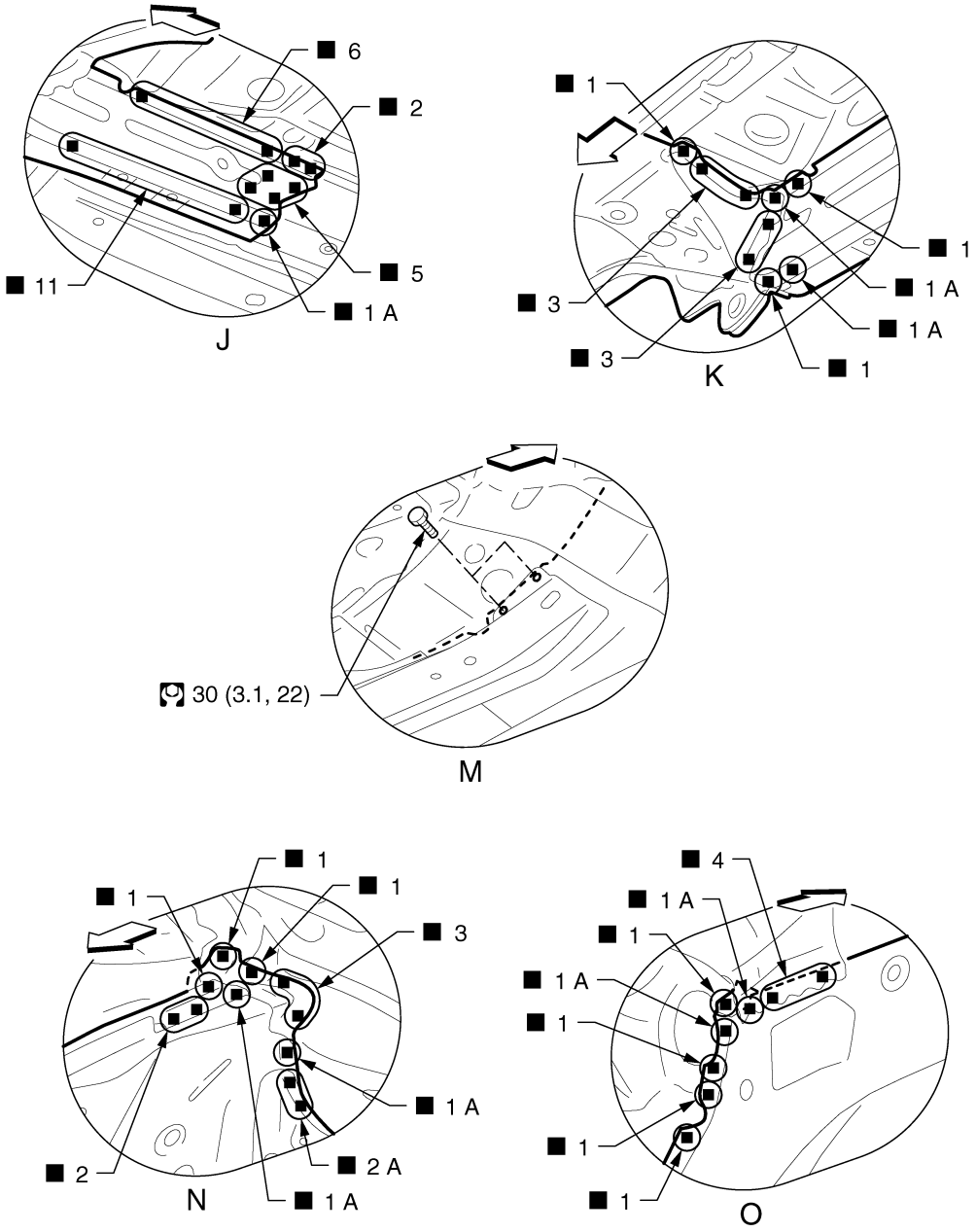


JSKIA0596GB

Unit: mm (in)

⇦ : Vehicle front

View F: Before installing front side member outrigger assembly



JSKIA0597GB

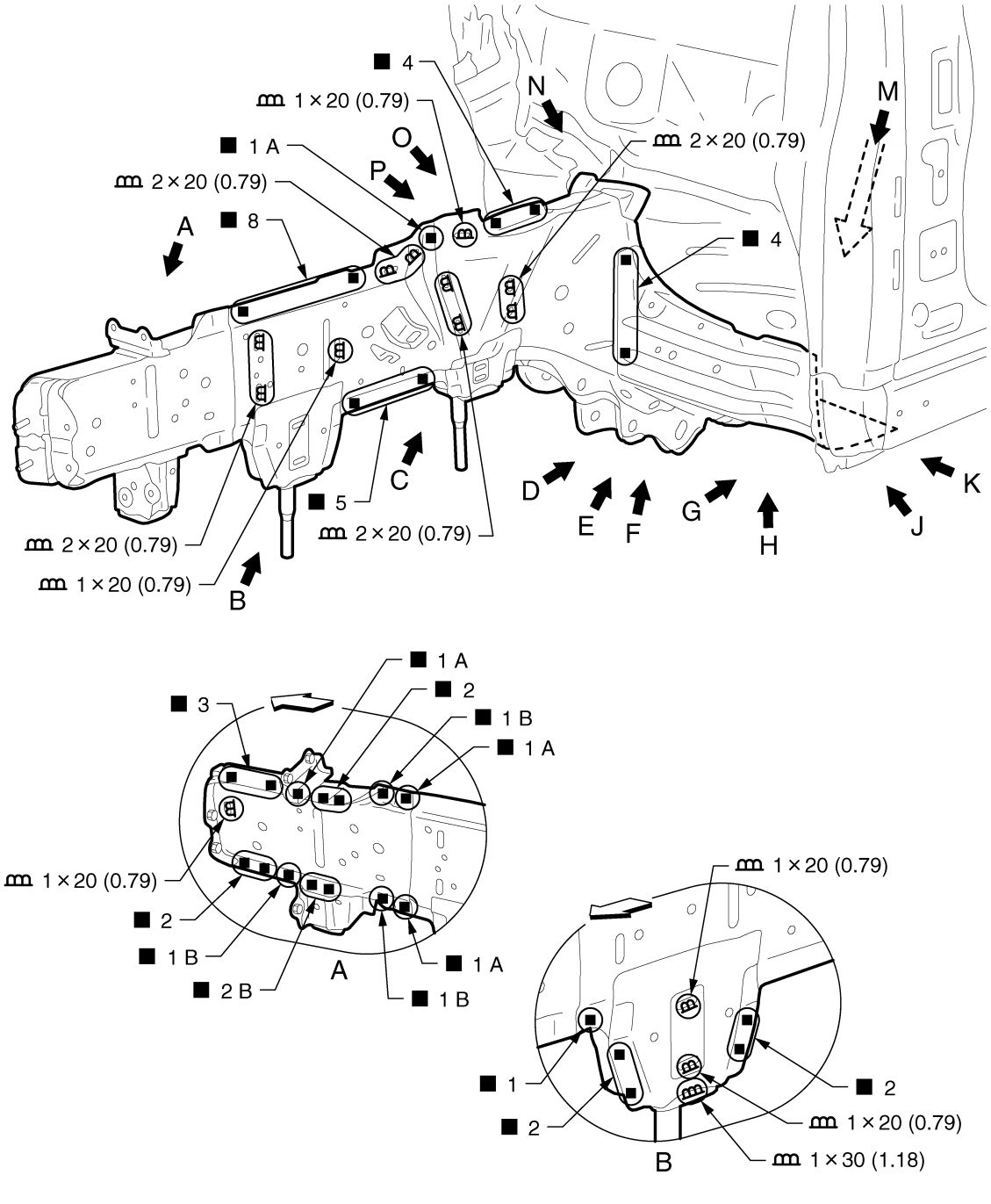
⇦ : Vehicle front

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

Front Side Member (AWD)

INFOID:0000000003757481

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

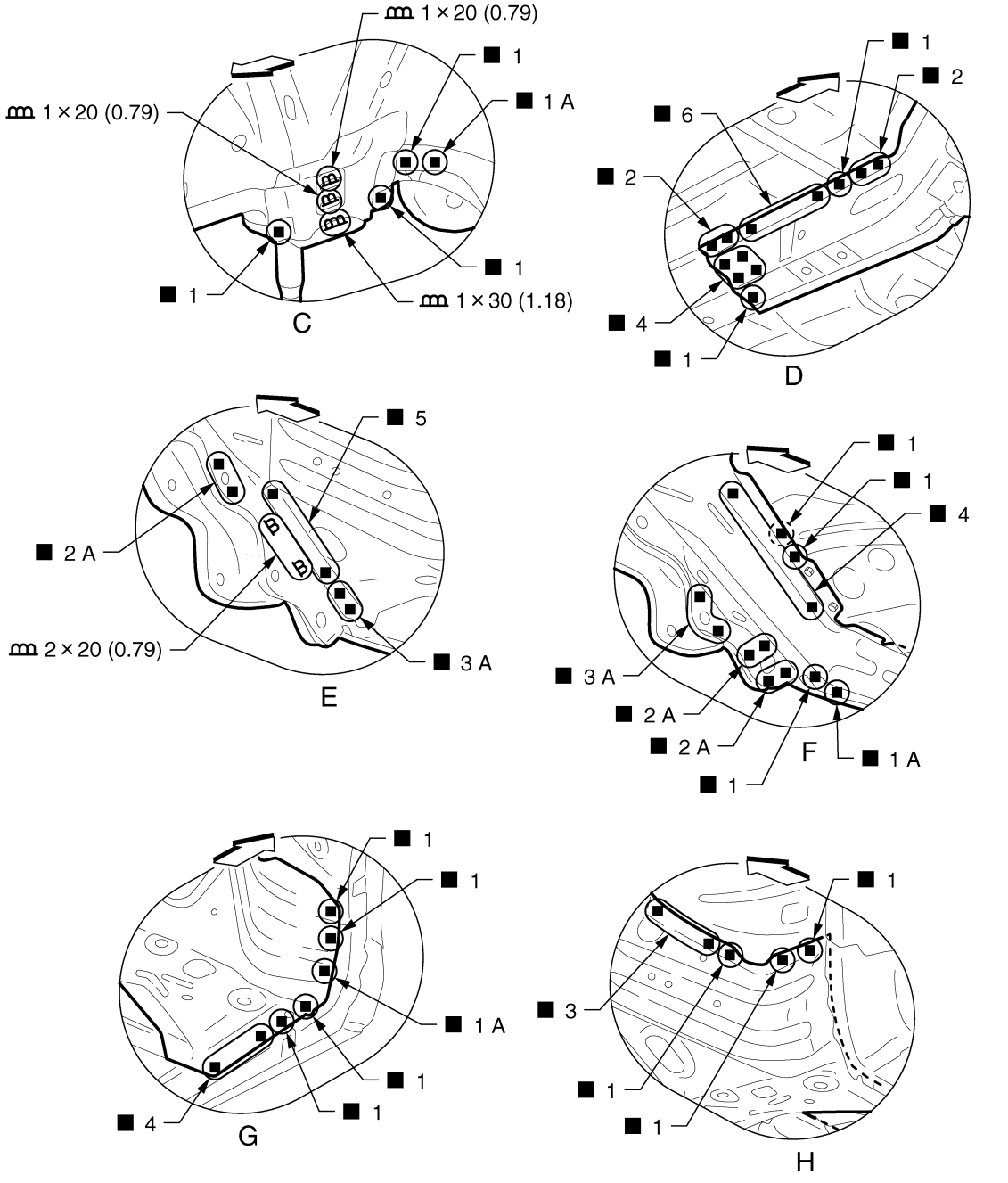


Unit: mm (in)

⇦ : Vehicle front

Replacement parts

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

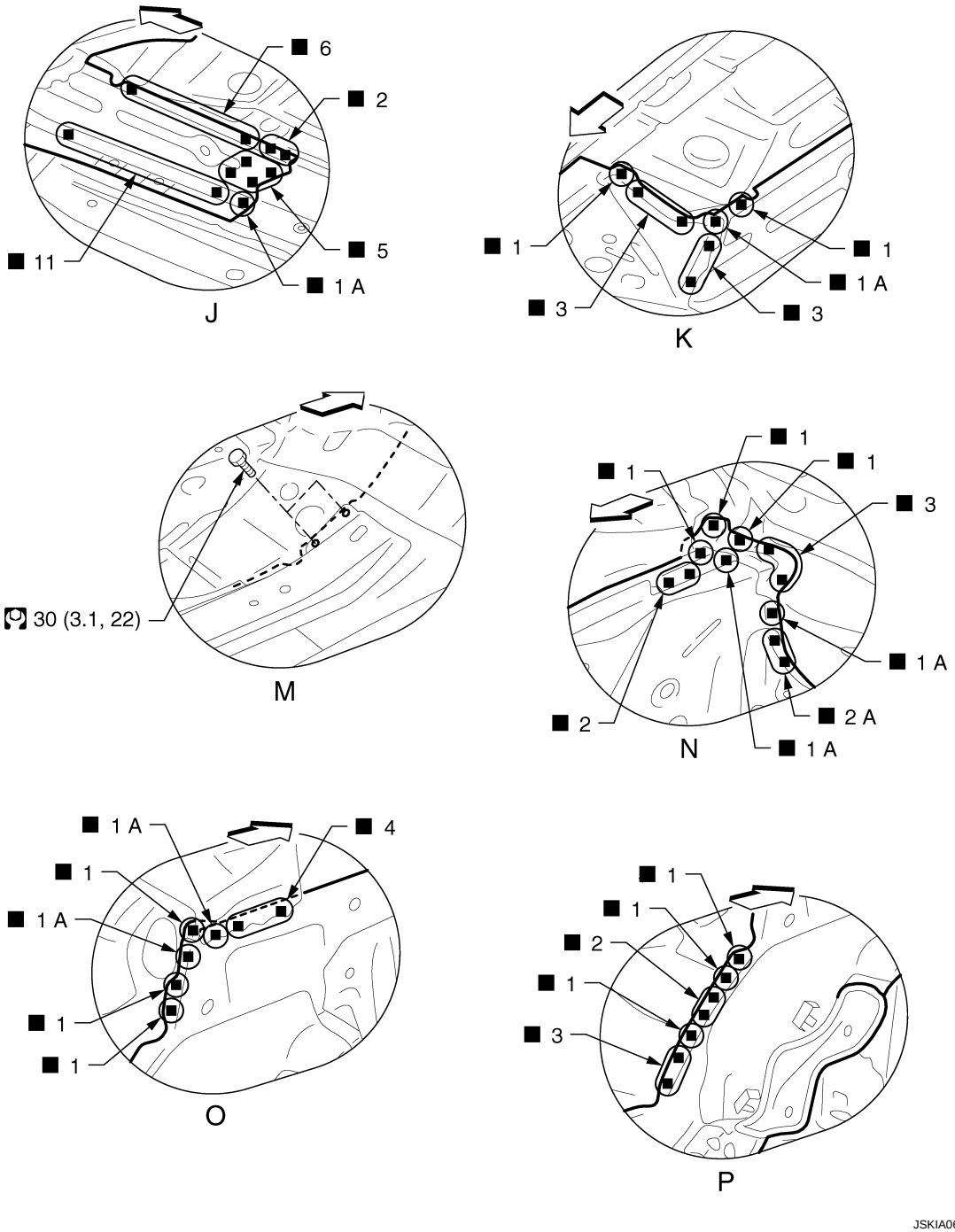


JSKIA0599GB

Unit: mm (in)

⇦ : Vehicle front

View F: Before installing front side member outrigger assembly



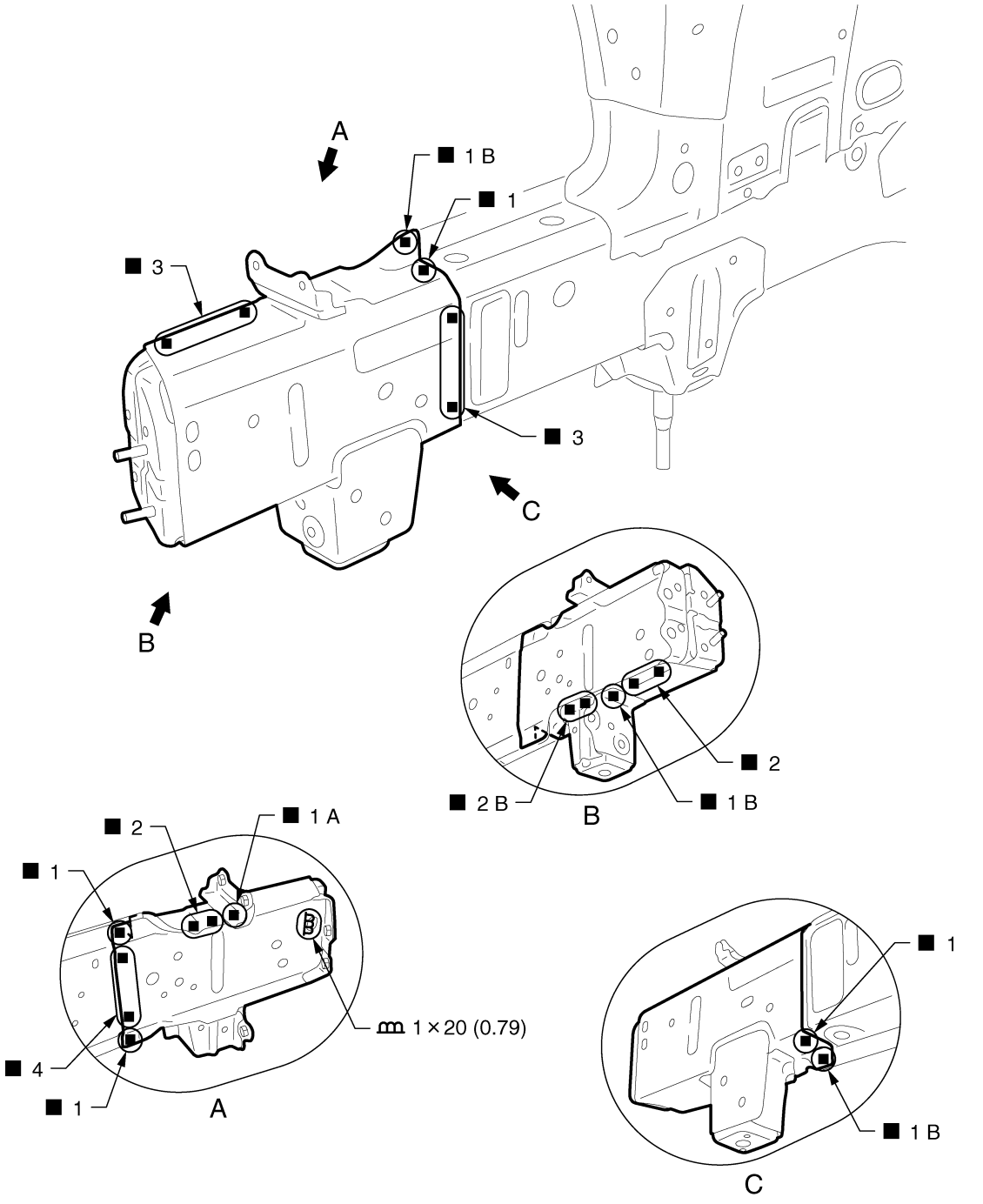
⇦ : Vehicle front

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

Front Side Member (Partial Replacement)

INFOID:0000000003757472

Work after radiator core support has been removed.



JSKIA0601GB

Unit: mm (in)

⇦ : Vehicle front

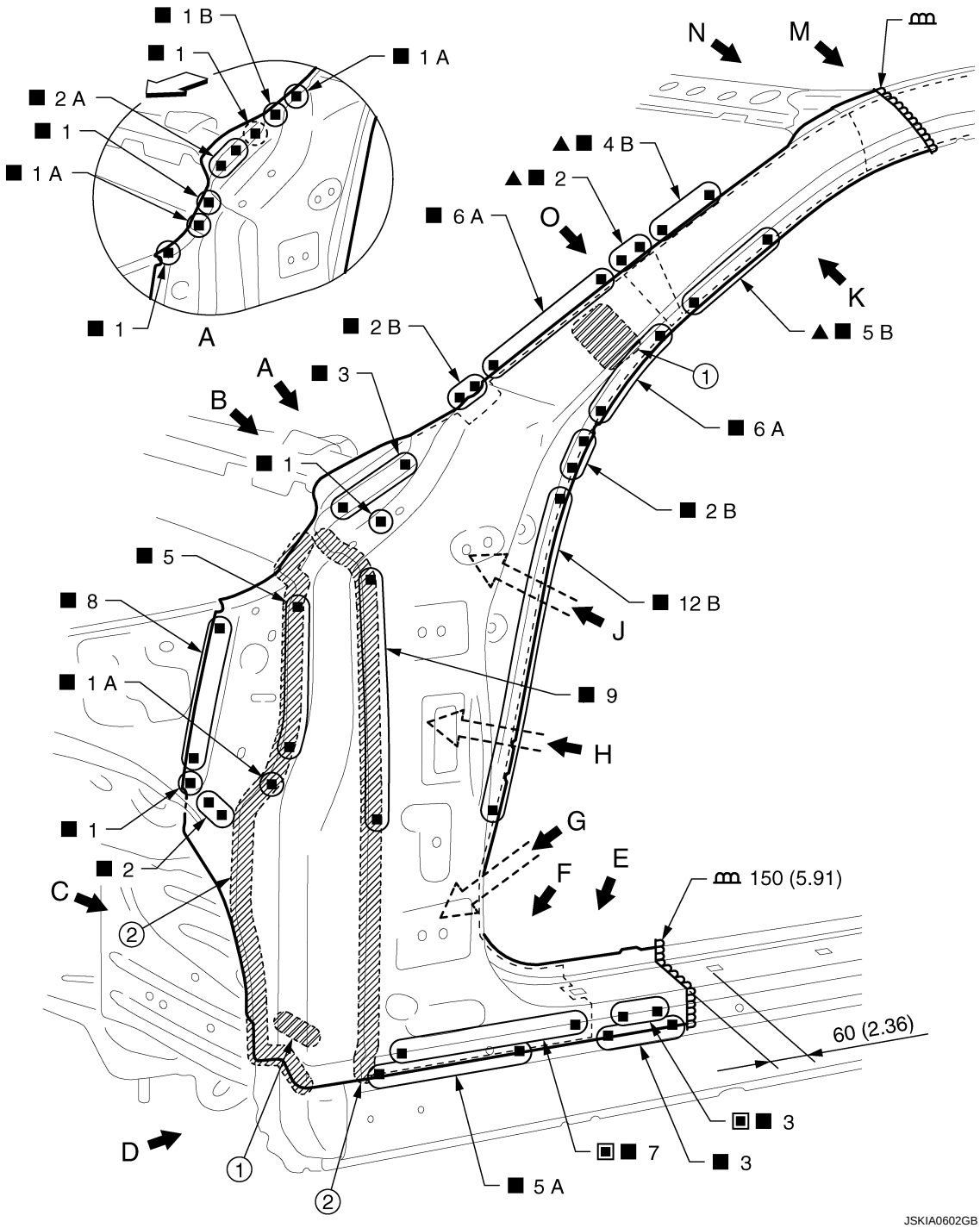
Replacement parts

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

Front Pillar

INFOID:0000000003757473

Work after hoodledge reinforcement and roof have been removed.



1. Urethane foam
2. Body sealing

Unit: mm (in)

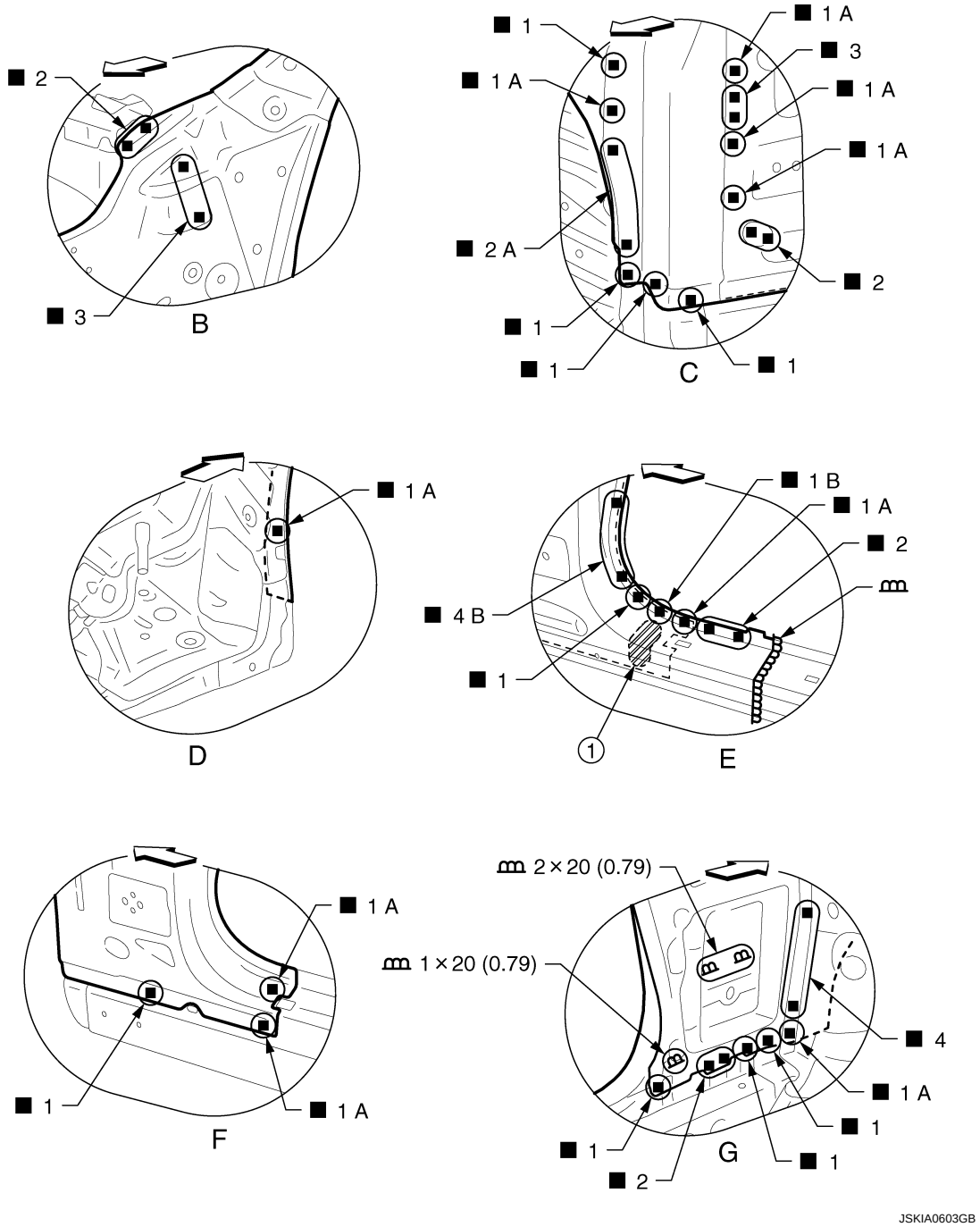
⇦ : Vehicle front

▲ : Drill ϕ8 mm (0.31 in) hole for the plug welding hole (ultra high strength steel plate).

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

Replacement parts

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

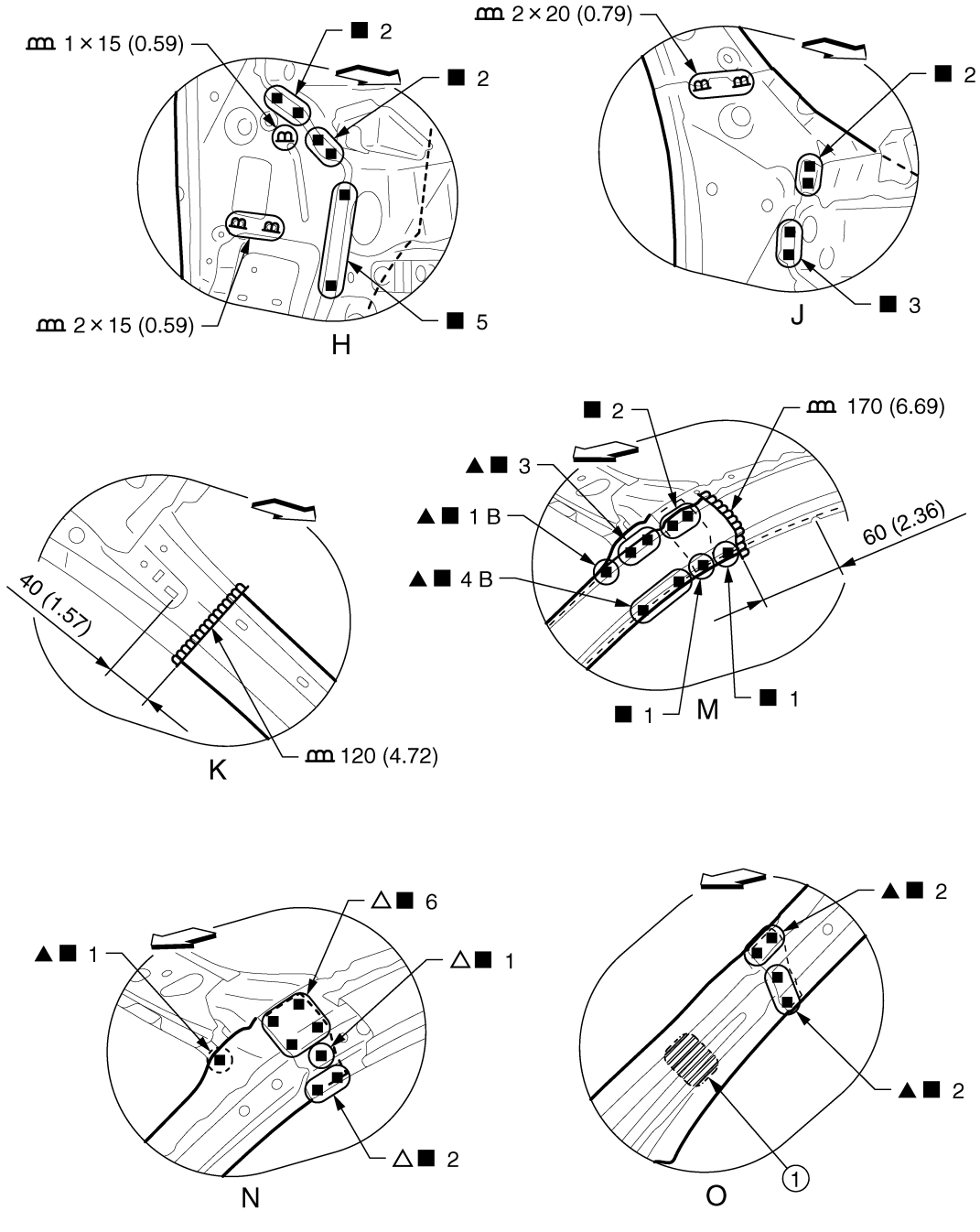


1. Urethane foam

Unit: mm (in)

⇦ : Vehicle front

View B: Before installing outer front side body and front pillar brace
View F: Before installing outer front side body



JSKIA0604GB

Unit: mm (in)

⇦ : Vehicle front

▲ : Drill ϕ8 mm (0.31 in) hole for the plug welding hole (ultra high strength steel plate).

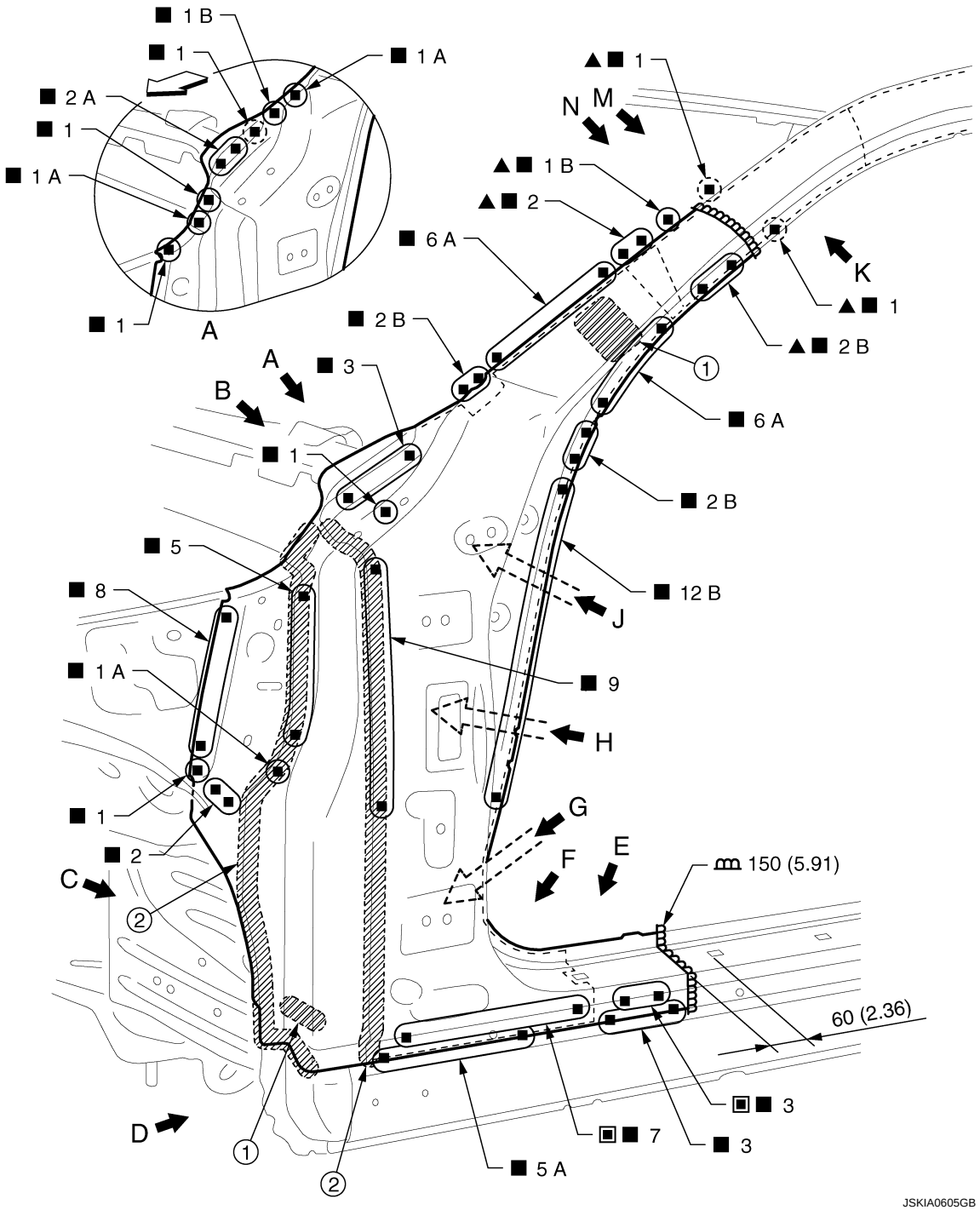
△ : Drill ϕ11 mm (0.43 in) hole for the plug welding hole (ultra high strength steel plate).

View N, O: Before installing outer front side body

Front Pillar (Partial Replacement)

INFOID:0000000003757482

Work after hoodledge reinforcement has been removed.



1. Urethane foam
2. Body sealing

Unit: mm (in)

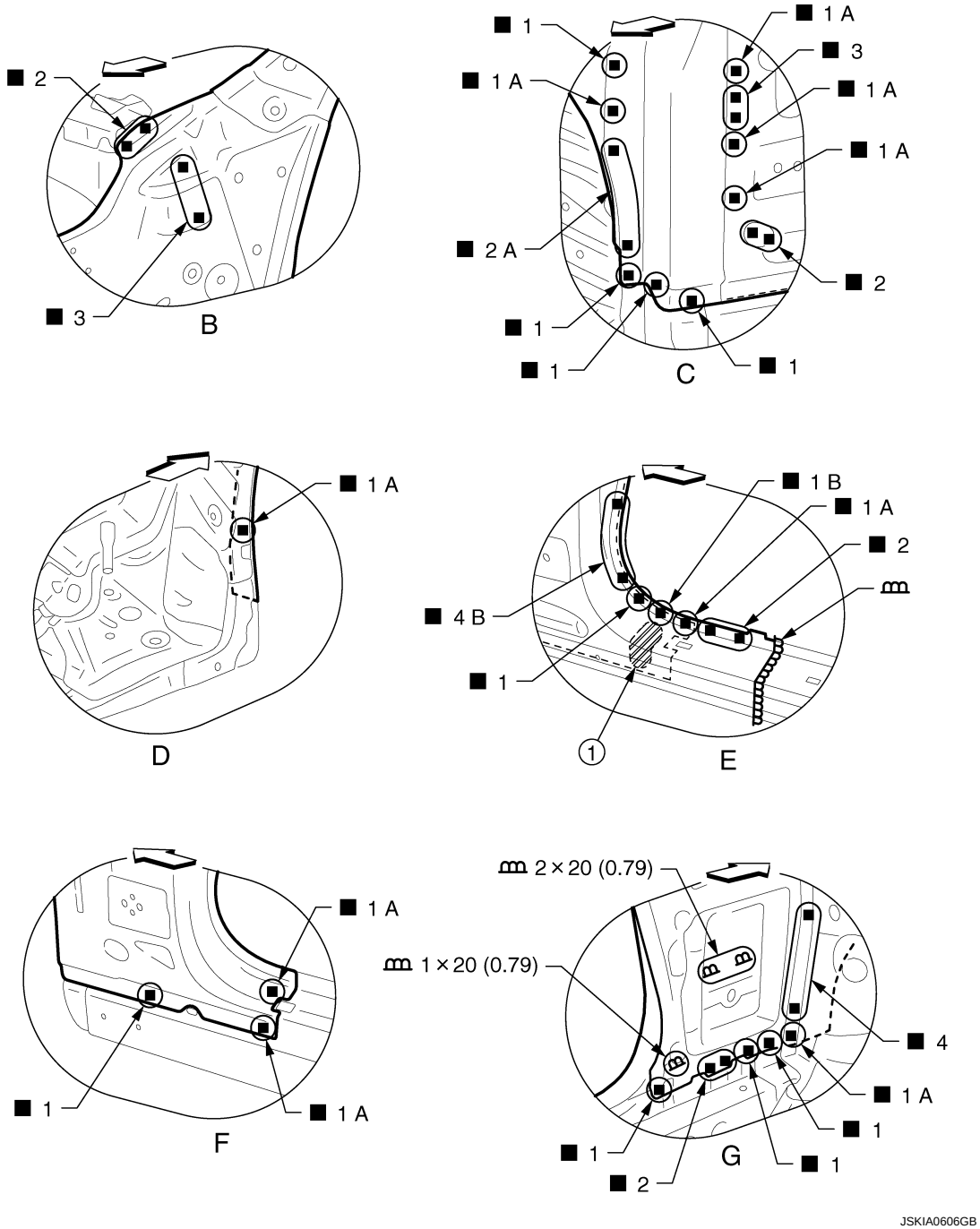
⇦ : Vehicle front

▲ : Drill ϕ8 mm (0.31 in) hole for the plug welding hole (ultra high strength steel plate).

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

Replacement parts

- Outer front side body (LH)
- Front pillar brace (LH)
- Upper rear hoodledge (LH)
- Upper inner front pillar assembly (LH)

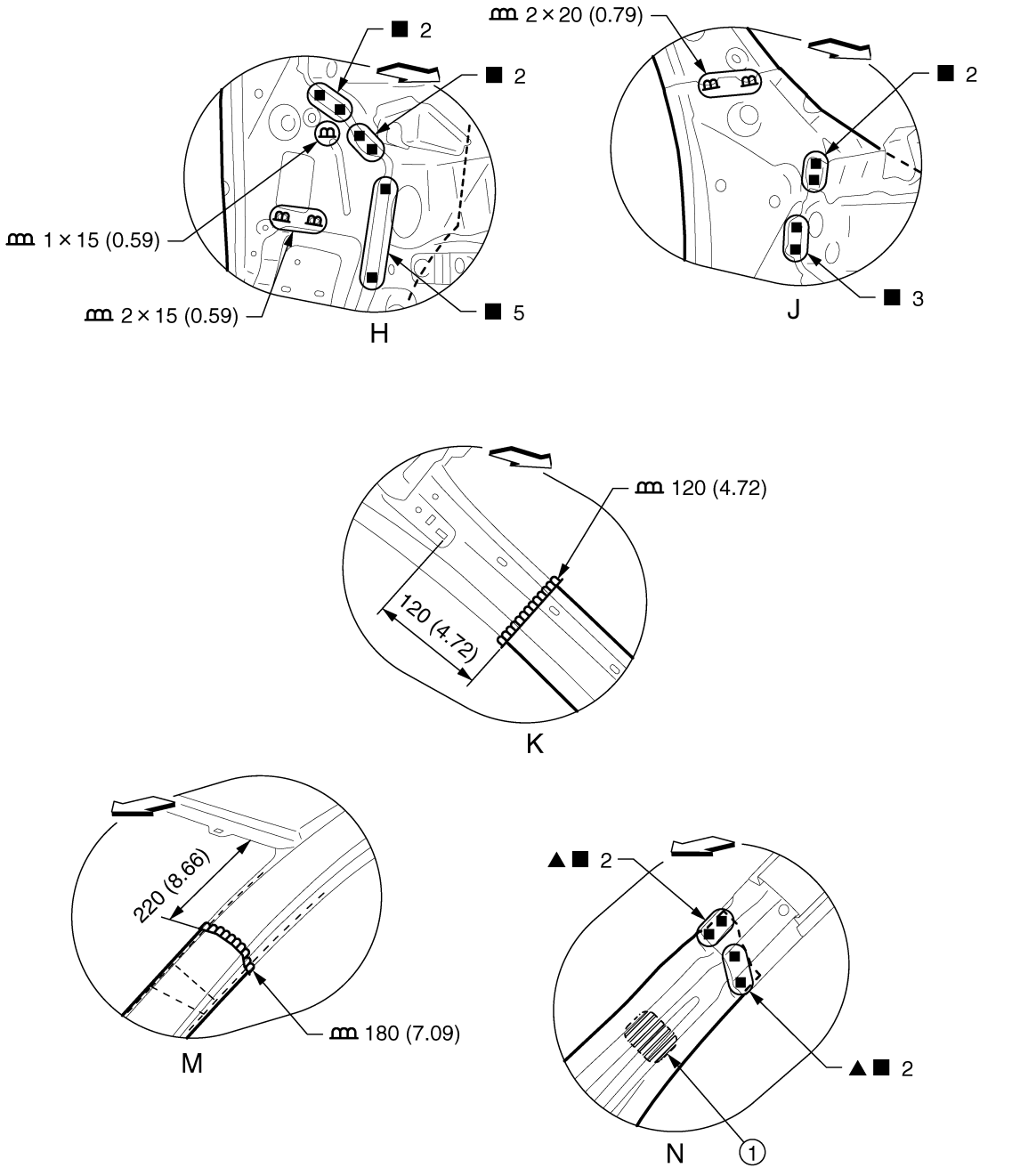


1. Urethane foam

Unit: mm (in)

⇦ : Vehicle front

View B: Before installing outer front side body and front pillar brace
View F: Before installing outer front side body



JSKIA0607GB

1. Urethane foam

Unit: mm (in)

⇦ : Vehicle front

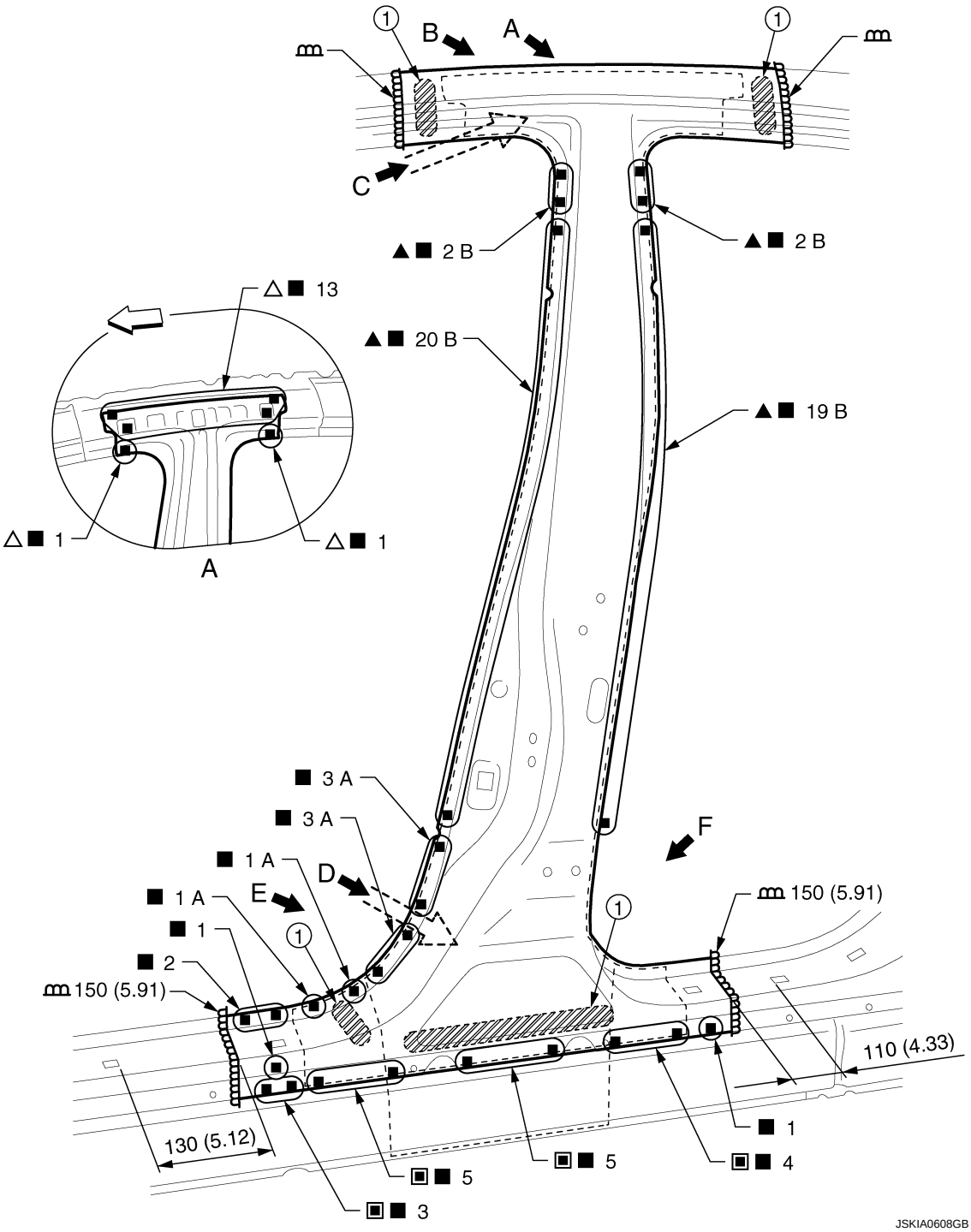
▲ : Drill ϕ8 mm (0.31 in) hole for the plug welding hole (ultra high strength steel plate).

View N: Before installing outer front side body

Center Pillar

INFOID:0000000003757474

Work after roof has been removed.



1. Urethane foam

Unit: mm (in)

⇦ : Vehicle front

▲ : Drill ϕ10 mm (0.39 in) hole for the plug welding hole (ultra high strength steel plate).

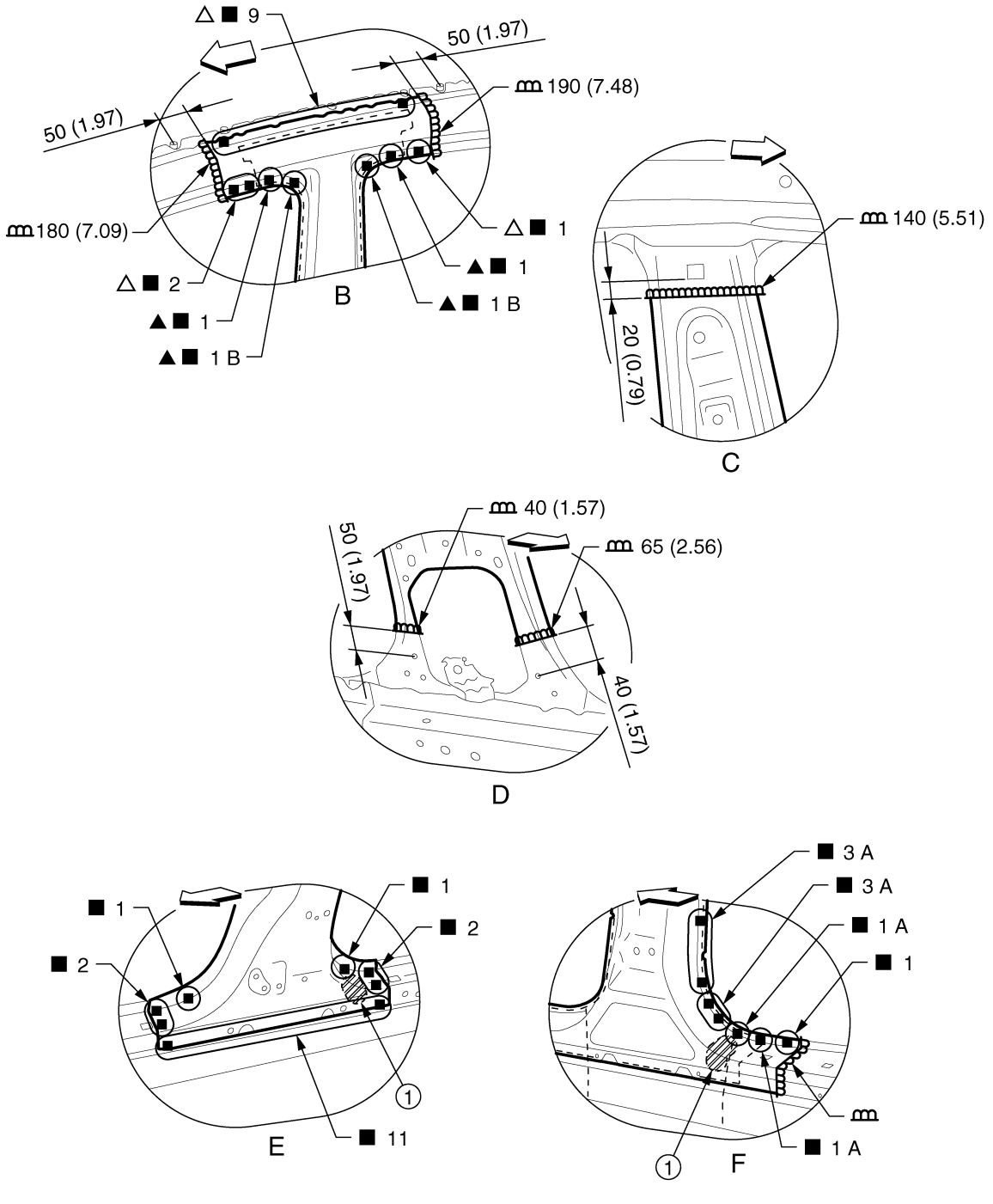
△ : Drill ϕ11 mm (0.43 in) hole for the plug welding hole (ultra high strength steel plate).

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

Replacement parts

- Outer front side body (LH)
- Center pillar reinforcement (LH)
- Inner center pillar (LH)

View A: Before installing outer front side body



JSKIA0609GB

1. Urethane foam

Unit: mm (in)

⇦ : Vehicle front

▲ : Drill ϕ10 mm (0.39 in) hole for the plug welding hole (ultra high strength steel plate).

△ : Drill ϕ11 mm (0.43 in) hole for the plug welding hole (ultra high strength steel plate).

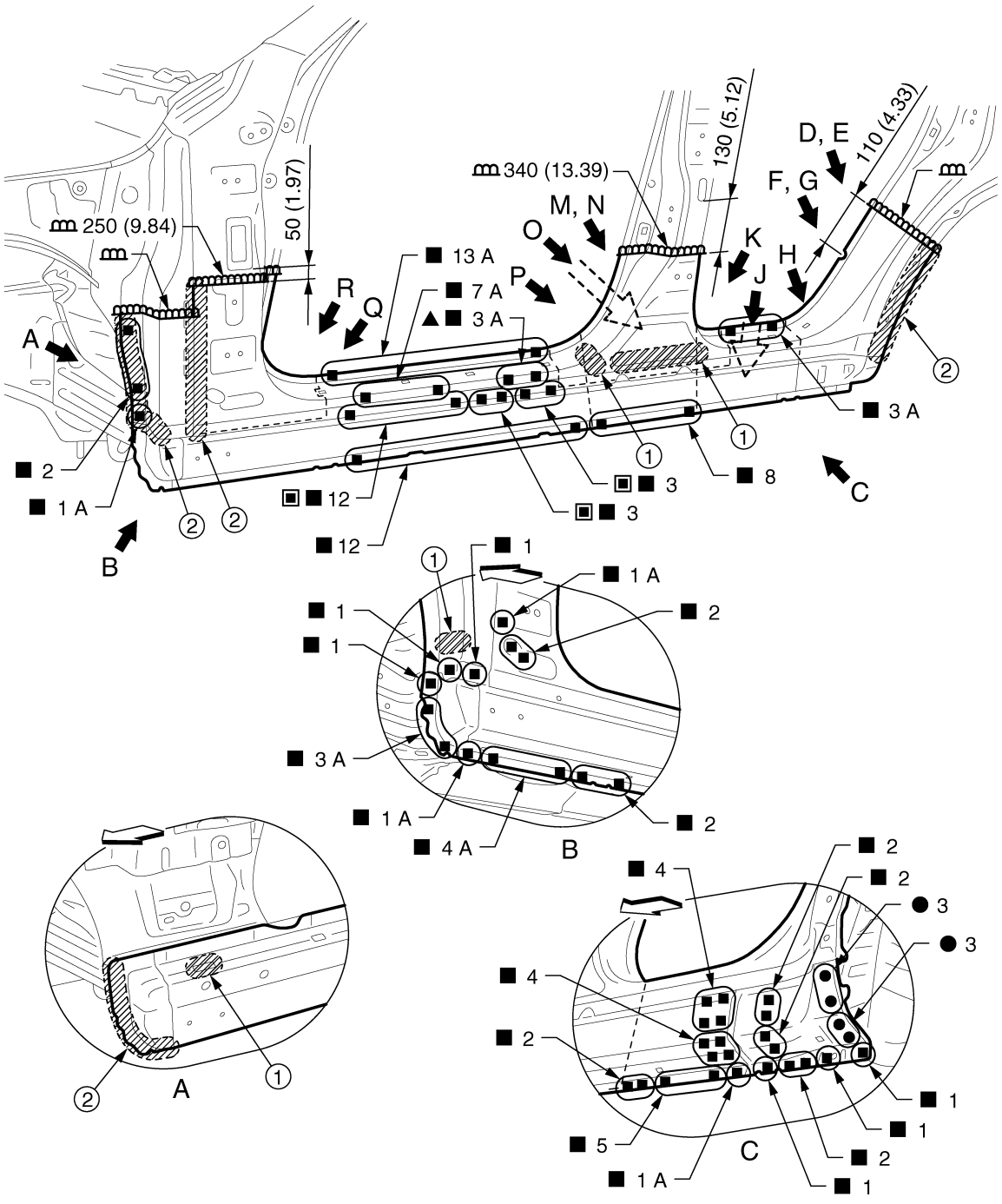
View E: Before installing outer front side body

Outer Sill

INFOID:0000000003757475

Work after hoodledge reinforcement has been removed.

Remove the front pillar brace and the center pillar reinforcement (reusable).



1. Urethane foam
2. Body sealing

Unit: mm (in)

⇦ : Vehicle front

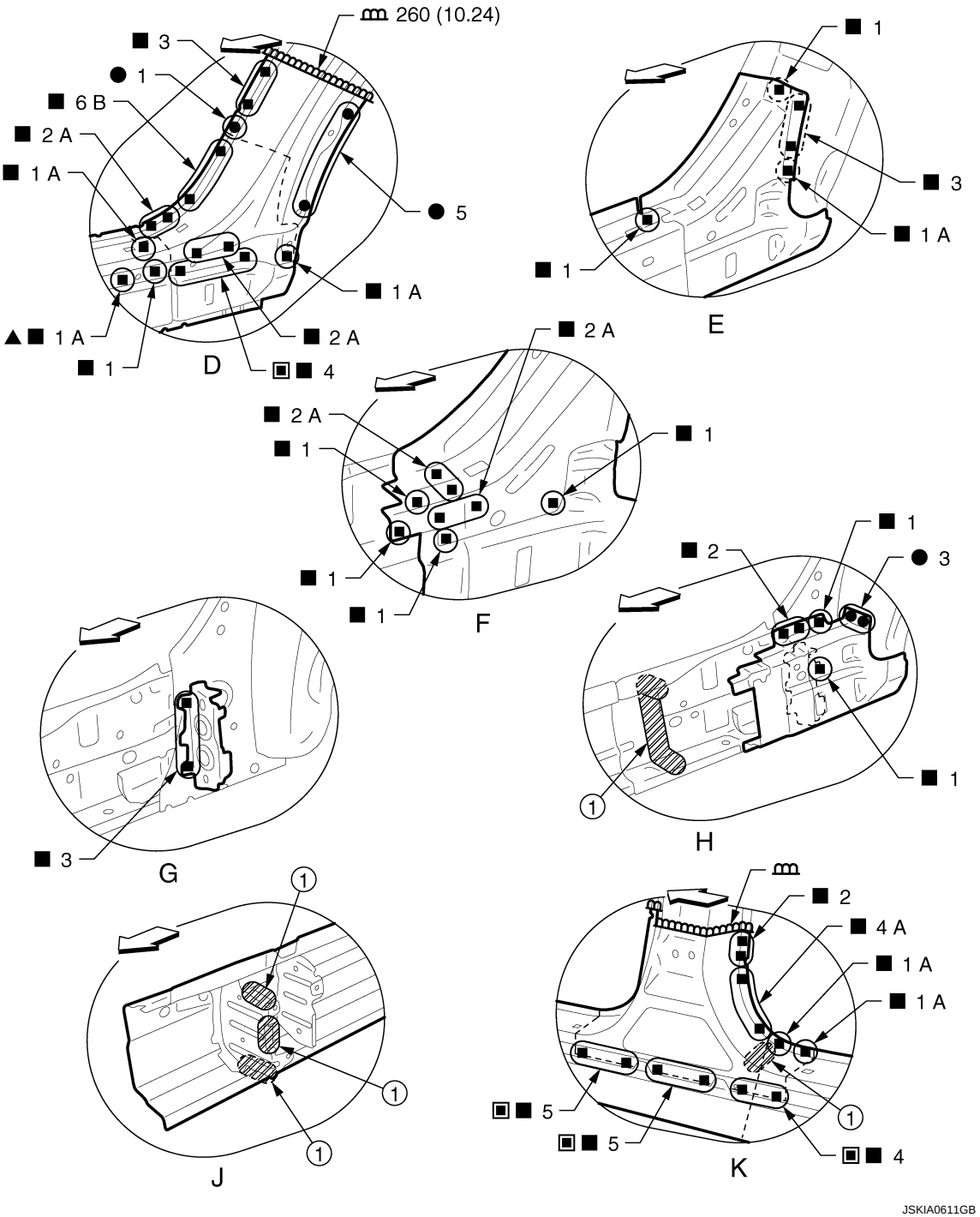
▲ : Drill ϕ8 mm (0.31 in) hole for the plug welding hole (ultra high strength steel plate).

▣ : 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 and front pillar brace



1. Urethane foam

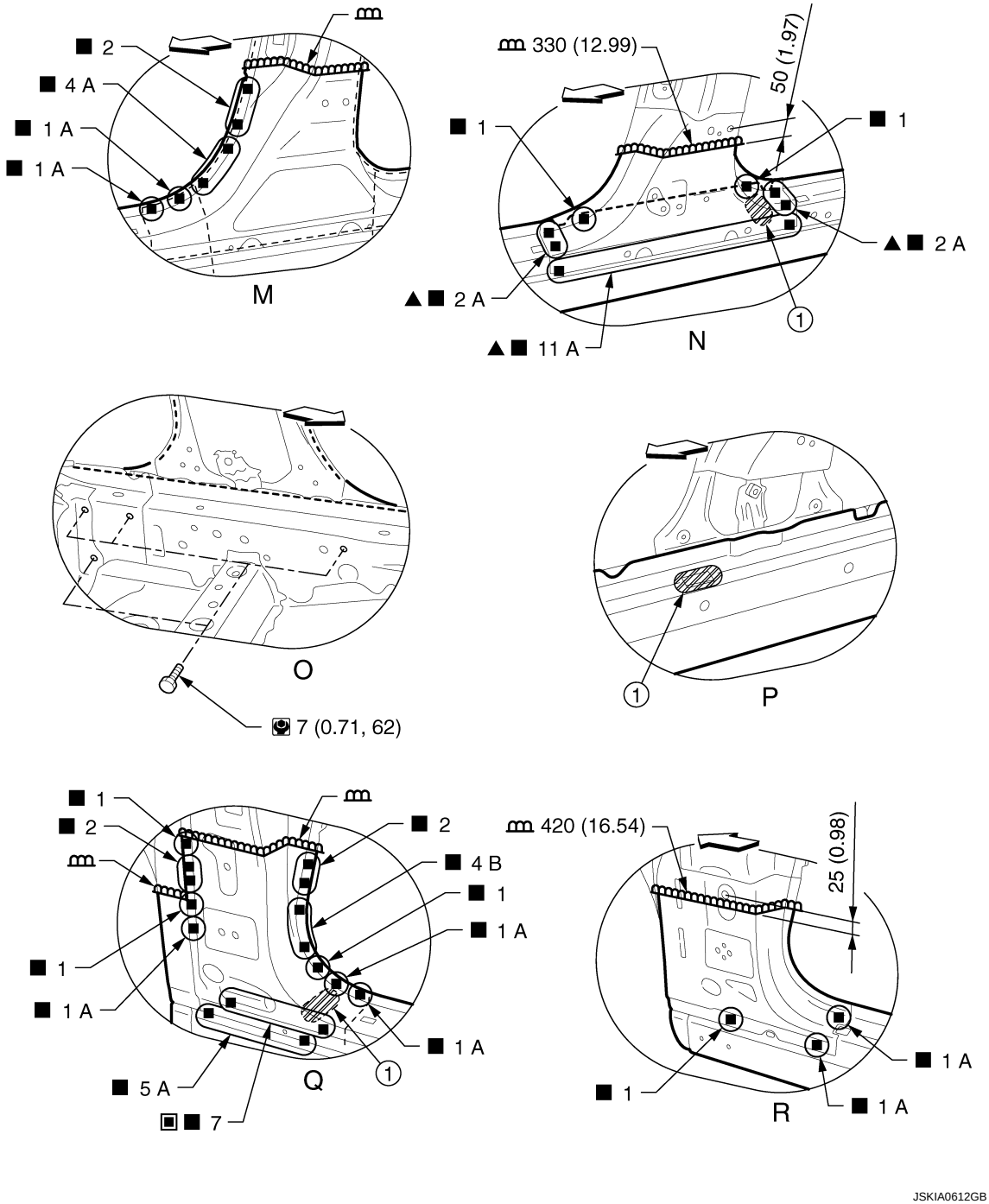
Unit: mm (in)

⇦ : Vehicle front

▲ : Drill ϕ8 mm (0.31 in) hole for the plug welding hole (ultra high strength steel plate).

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

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



JSKIA0612GB

1. Urethane foam

Unit: mm (in)

⇦ : Vehicle front

▲ : Drill ϕ8 mm (0.31 in) hole for the plug welding hole (ultra high strength steel plate).

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

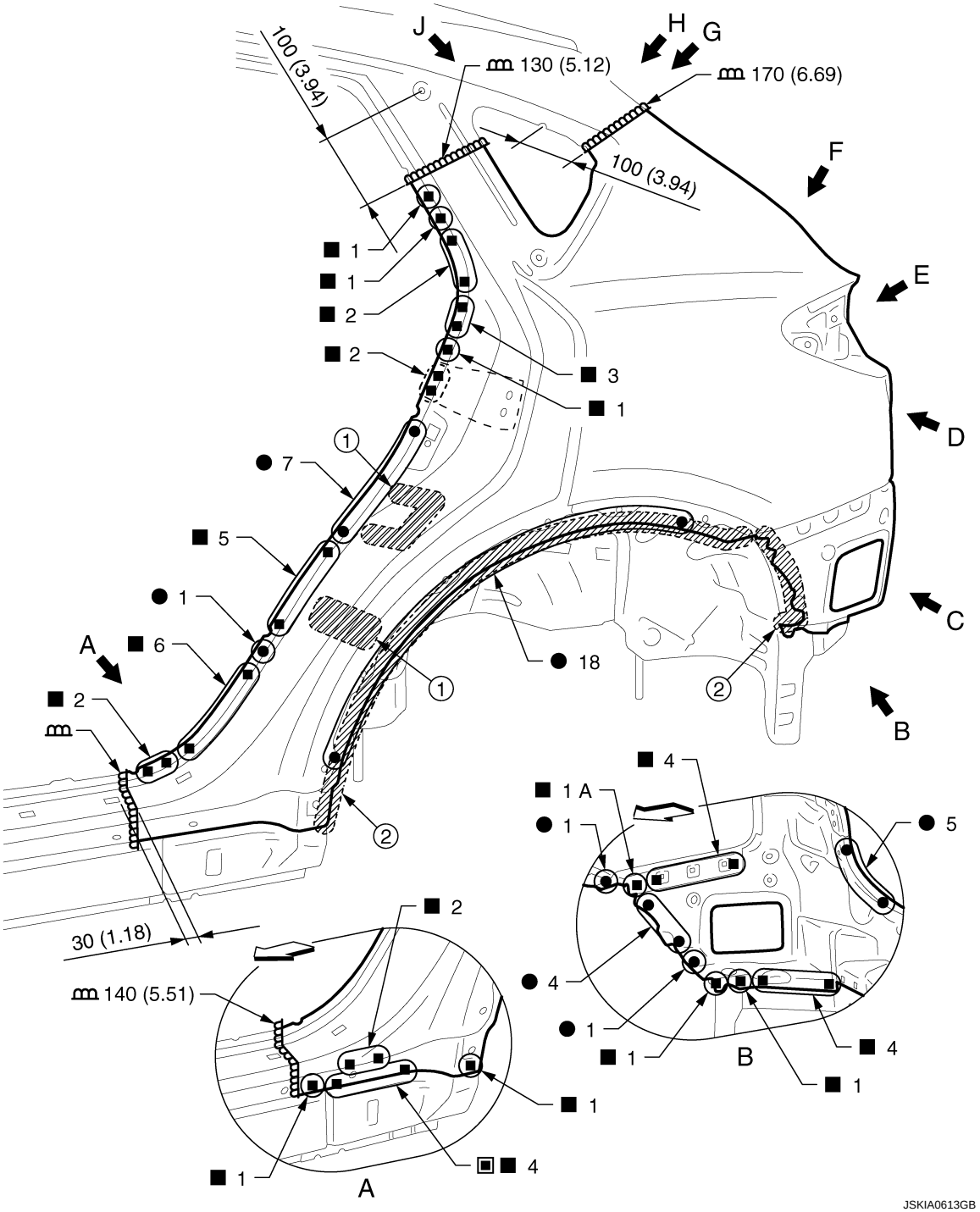
Refer to GI-4, "Components" for symbols in the figure.

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

Rear Fender

INFOID:0000000003757476

Remove the tail pillar assembly and rear fender extension from the rear fender assembly service part for easier installation.



1. Urethane foam
2. Body sealing

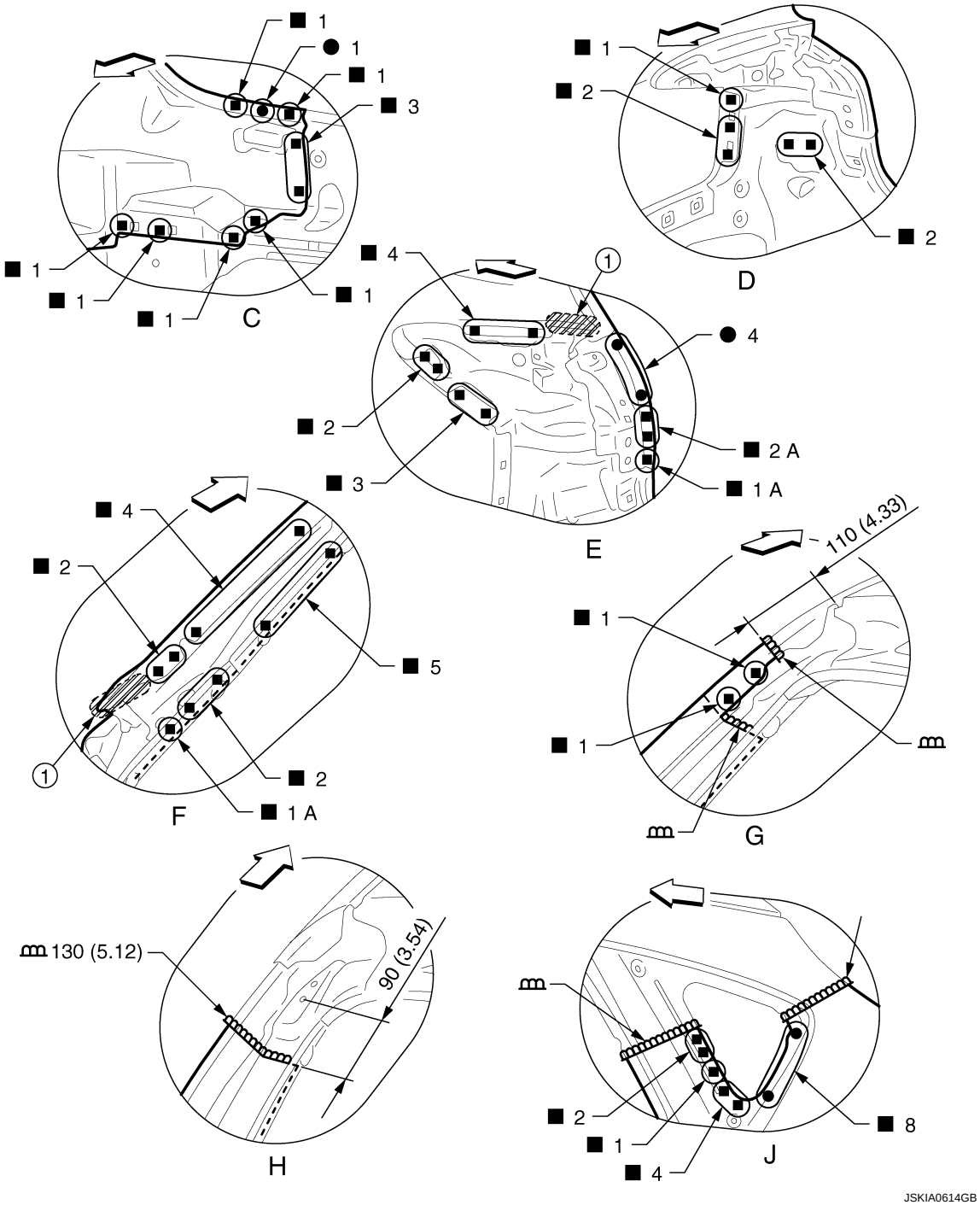
Unit: mm (in)

⇦ : Vehicle front

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

Replacement parts

l Rear fender assembly (LH)



1. Urethane foam

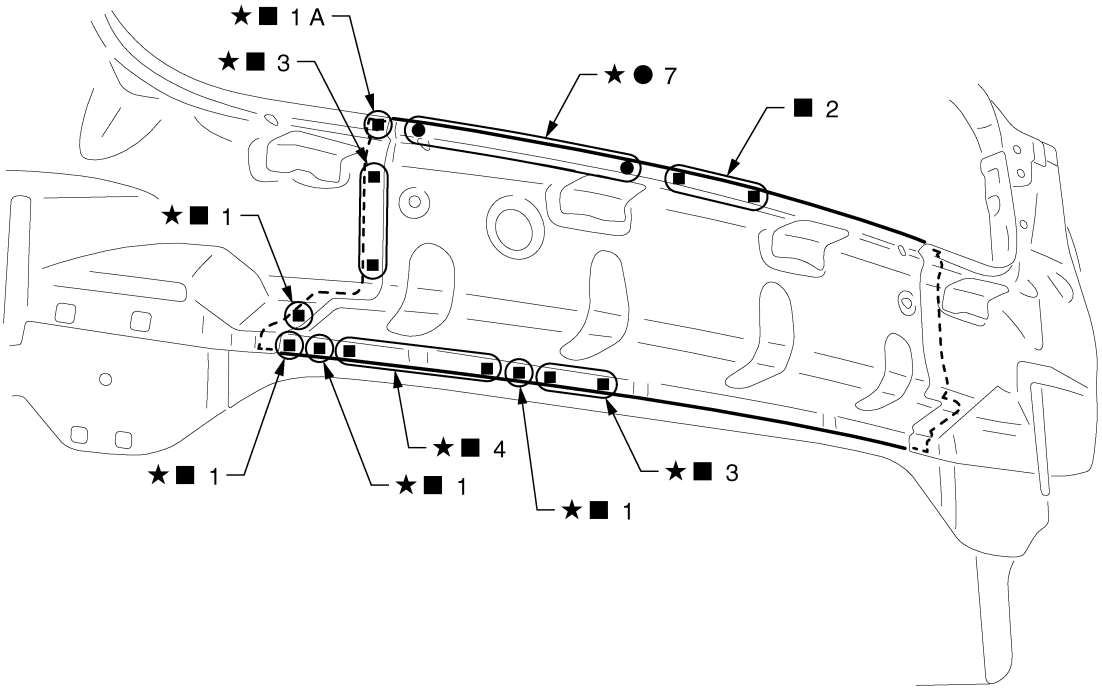
Unit: mm (in)

⇦ : Vehicle front

View H: Before installing rear fender

Rear Panel

INFOID:0000000003757477



JSKIA0615ZZ

⇦ : Vehicle front

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

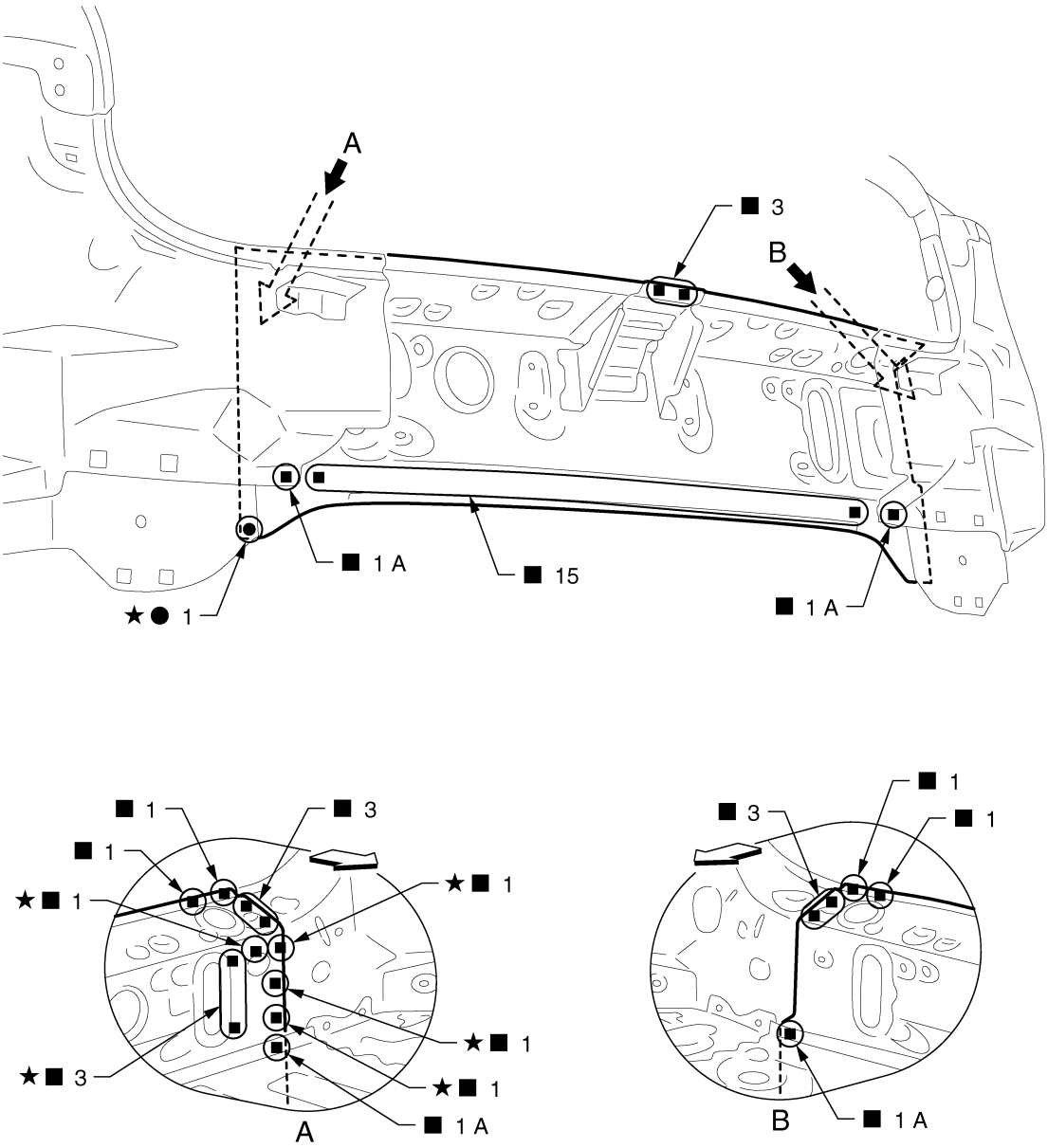
Replacement parts

- Rear panel assembly

Rear End Crossmember

INFOID:0000000003757483

Work after rear panel has been removed.



JSKIA0616ZZ

⇦ : Vehicle front

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

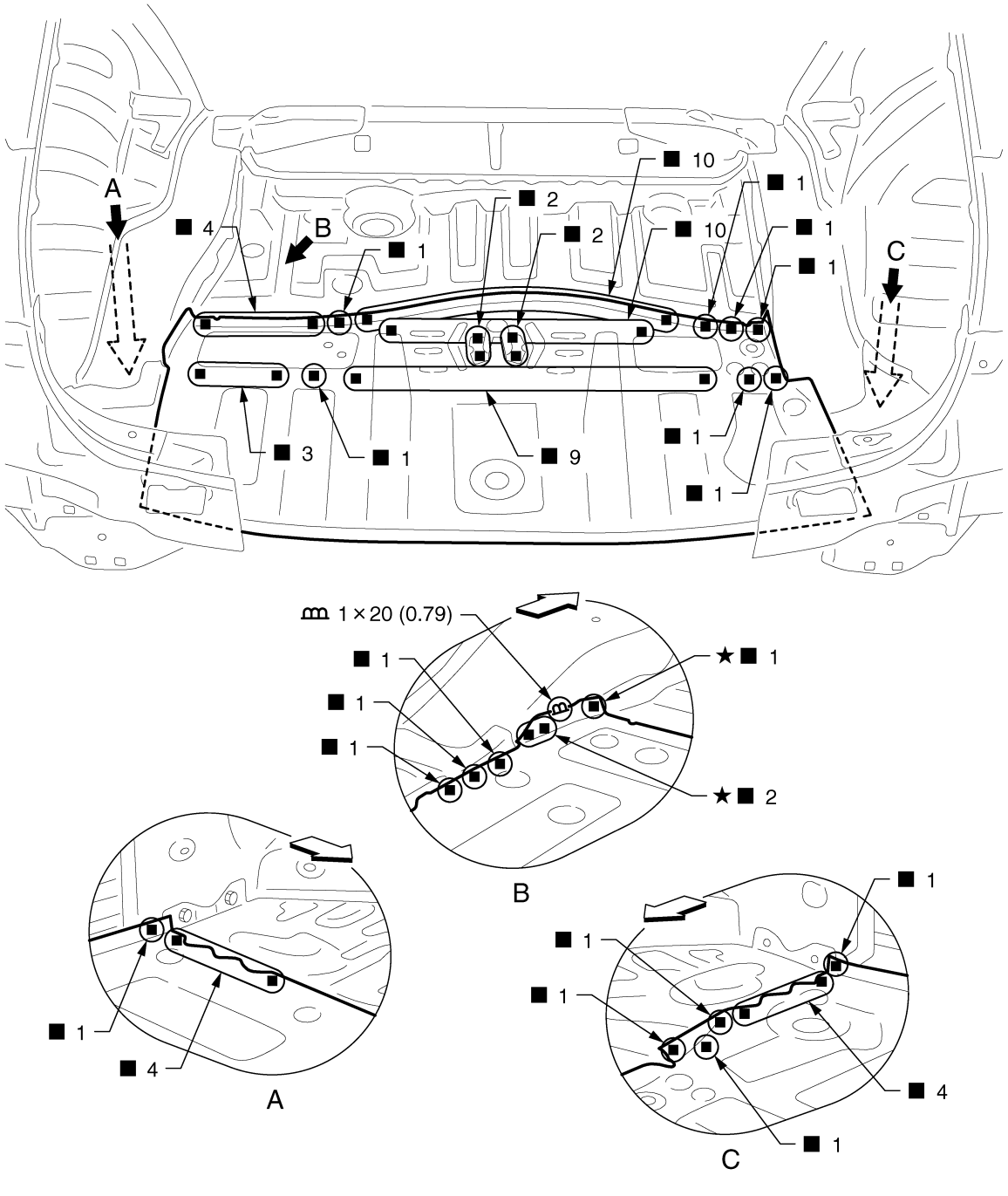
Replacement parts

- Rear end crossmember assembly

Rear Floor Rear

INFOID:0000000003757478

Work after rear panel and rear end crossmember assembly have been removed.



unit: mm (in)

⇦ : Vehicle front

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

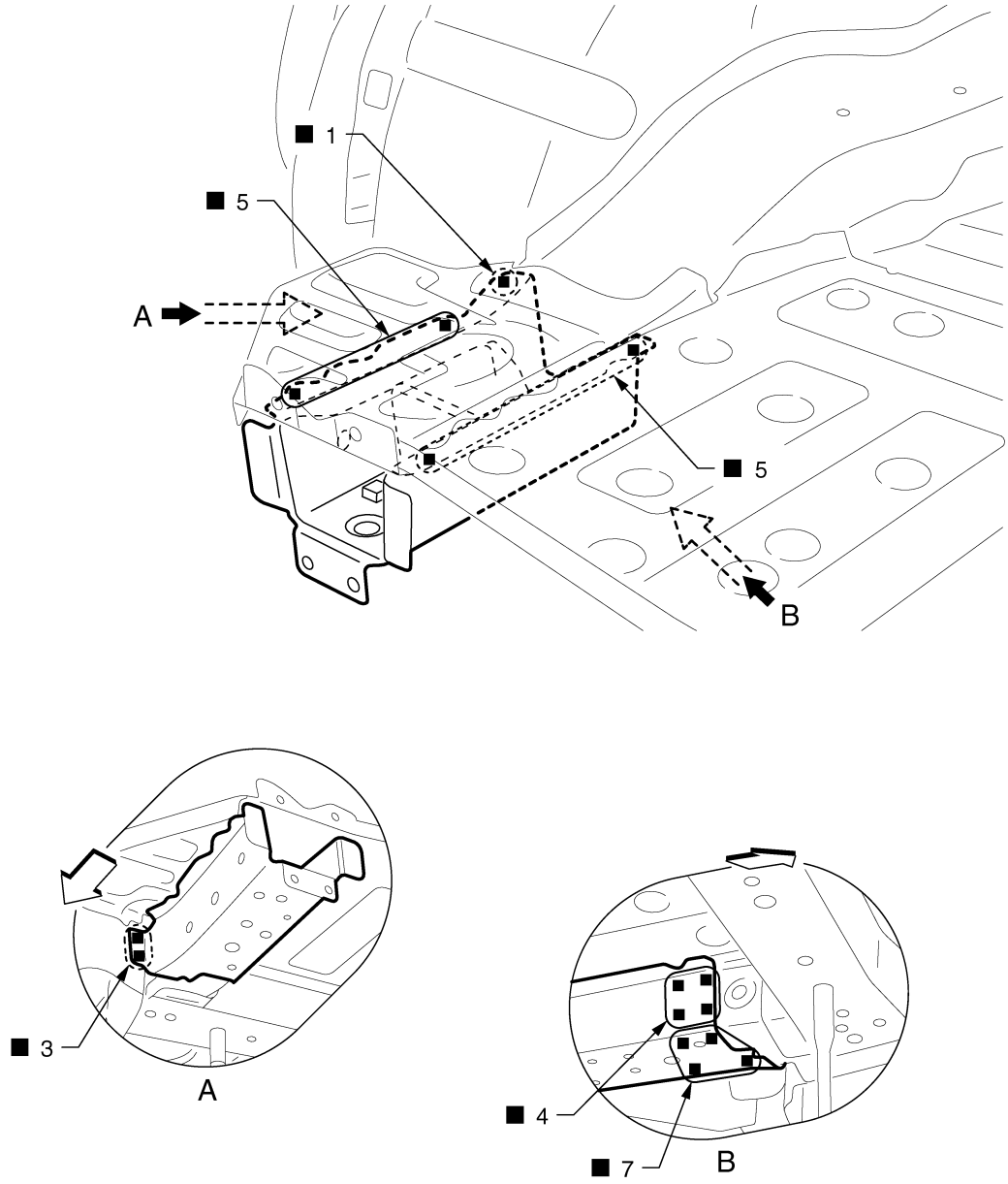
Replacement parts

- Rear floor rear
- Spare tire clamp bracket

Rear Side Member Extension

INFOID:0000000003757479

Work after rear panel, rear end crossmember, rear fender extension and lower inner rear pillar have been removed.



JSKIA0618ZZ

⇦ : Vehicle front

Replacement parts

- Rear side member extension (LH)