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Model Year Start: 2020	**Model:** RAV4	**Prod Date Range:** [10/2019 -]
Title: EXTERIOR PANELS / TRIM: BODY STRUCTURE: SOUND ABSORBING AND VIBRATION DAMPING MATERIAL; 2020 MY RAV4 RAV4 HV [10/2019 -]		

SOUND ABSORBING AND VIBRATION DAMPING MATERIAL

CONSTRUCTION

(a) Sound Absorption and Insulation Structure

(1) Various types of silencers are positioned around the floor panel and engine compartment to greatly suppress vibration and noise that are transmitted into the interior from parts such as the engine and tires, achieving superior quietness. Also, materials such as foamed materials, sound insulation sealant and damping materials are optimally positioned to achieve superior NVH* performance.

HINT:

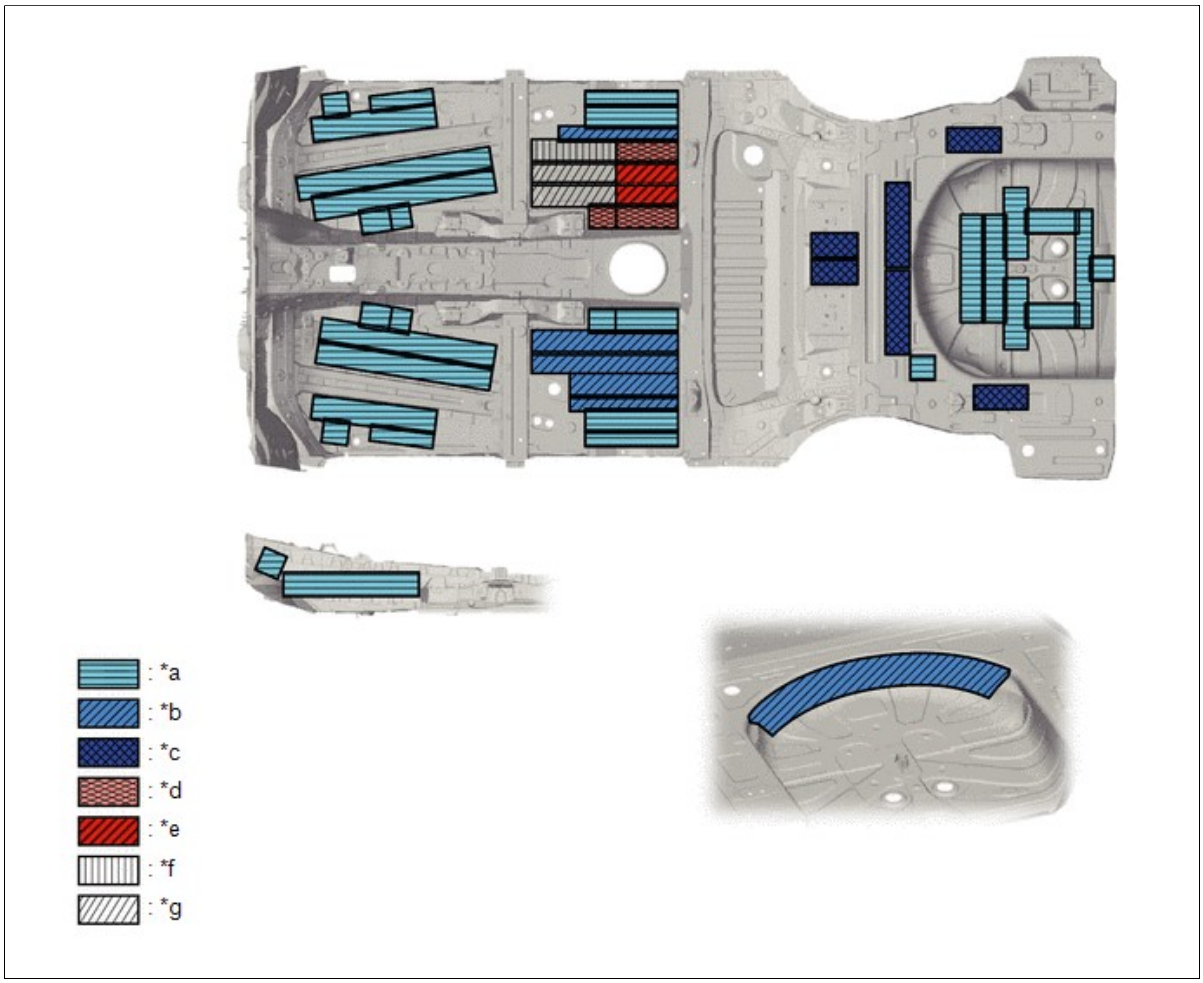
*: An abbreviation created by taking the first letter of Noise (unpleasant sounds and loud sounds), Vibration (vibrations from the engine and tires) and Harshness (vibrations felt through the steering wheel, seats and floor according to height changes in the road surface, etc.). NVH is used to describe the level of riding comfort and sound quality actually experienced by passengers.

(b) Floor Silencer

(1) The floor silencer (applied damping materials) optimal thickness varies by the area, is lightweight and provides excellent quietness. These characteristics allow the floor silencer to reduce road and engine noise which enters the cabin.

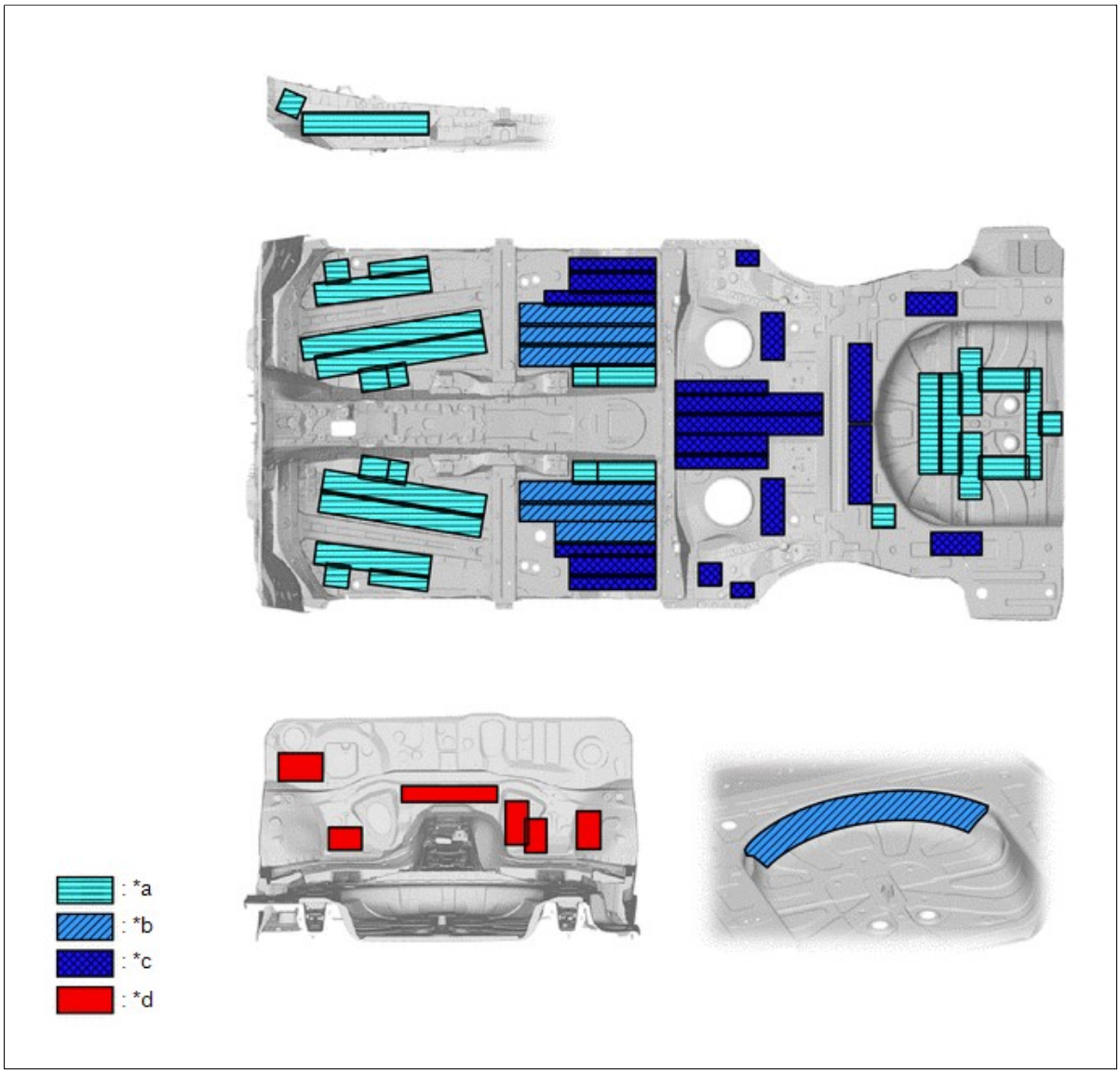
(2) In what put out for coating of the thickness of the damping materials, I planned improvement of the silent nature and coexistence of the mass reduction.

HV Models (This illustration is an example only.)



*a	Dry Surface Density: 1.4 (kg/m^2)	*b	Dry Surface Density: 2.1 (kg/m^2)
*c	Dry Surface Density: 3.1 (kg/m^2)	*d	Dry Surface Density: 4.0 (kg/m^2)
*e	Dry Surface Density: 4.9 (kg/m^2)	*f	Dry Thickness: 1.8 - 3.4 mm (0.0709 - 0.134 inch)
*g	Dry Thickness: 1.8 - 4.1 mm (0.0709 - 0.161 inch)	-	-

Gasoline Models (This illustration is an example only.)

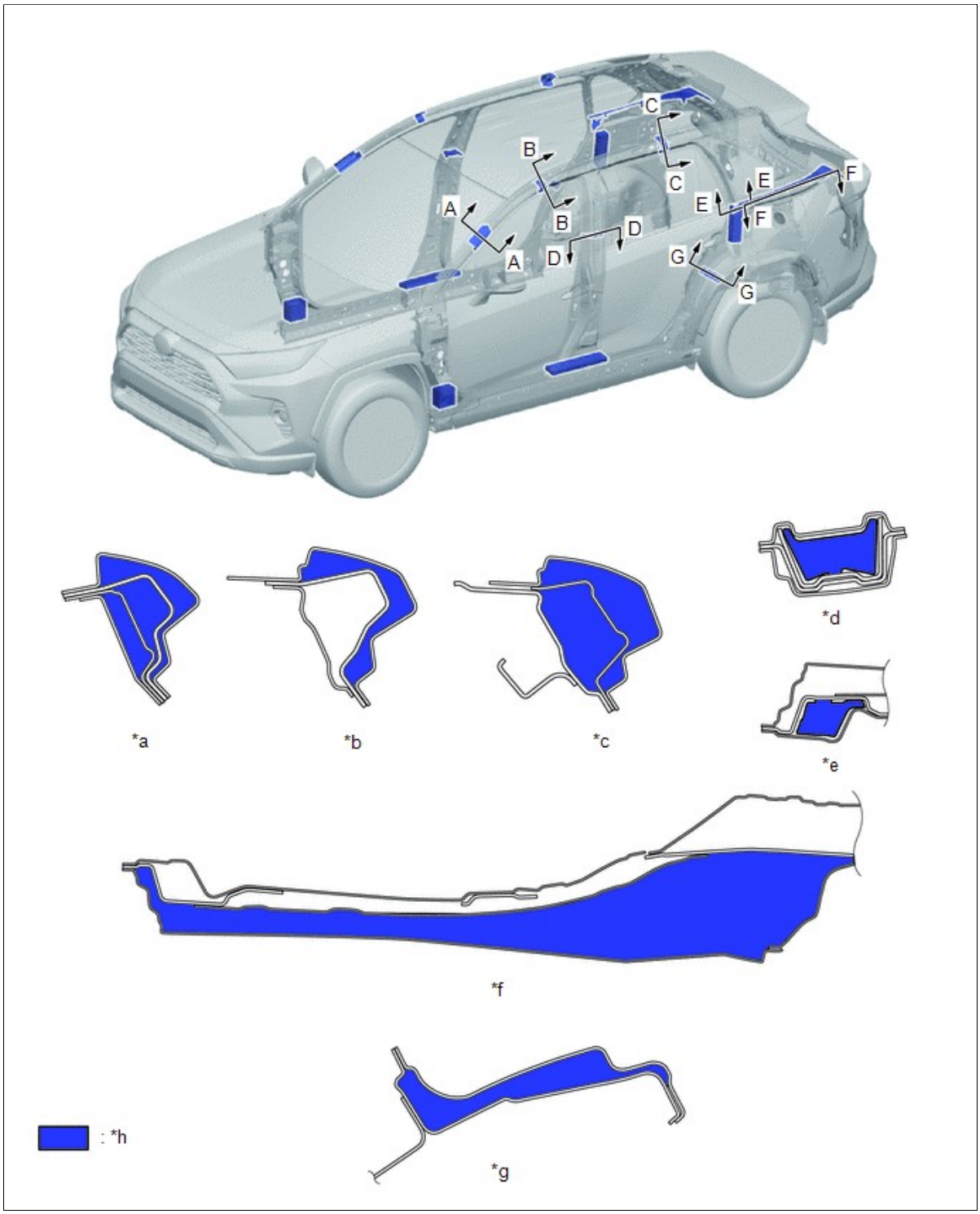


*a	Dry Surface Density: 1.4 (kg/m^2)	*b	Dry Surface Density: 2.1 (kg/m^2)
*c	Dry Surface Density: 3.1 (kg/m^2)	*d	Dry Surface Density: 4.0 (kg/m^2)

(c) Sound Absorption Material

(1) Sound absorption materials (foamed and solid foamed materials) are optimally positioned in the cabin frameworks, reducing the amount of wind and road noise that enter the vehicle.

Sound Absorption Material (The illustration is an example only.)

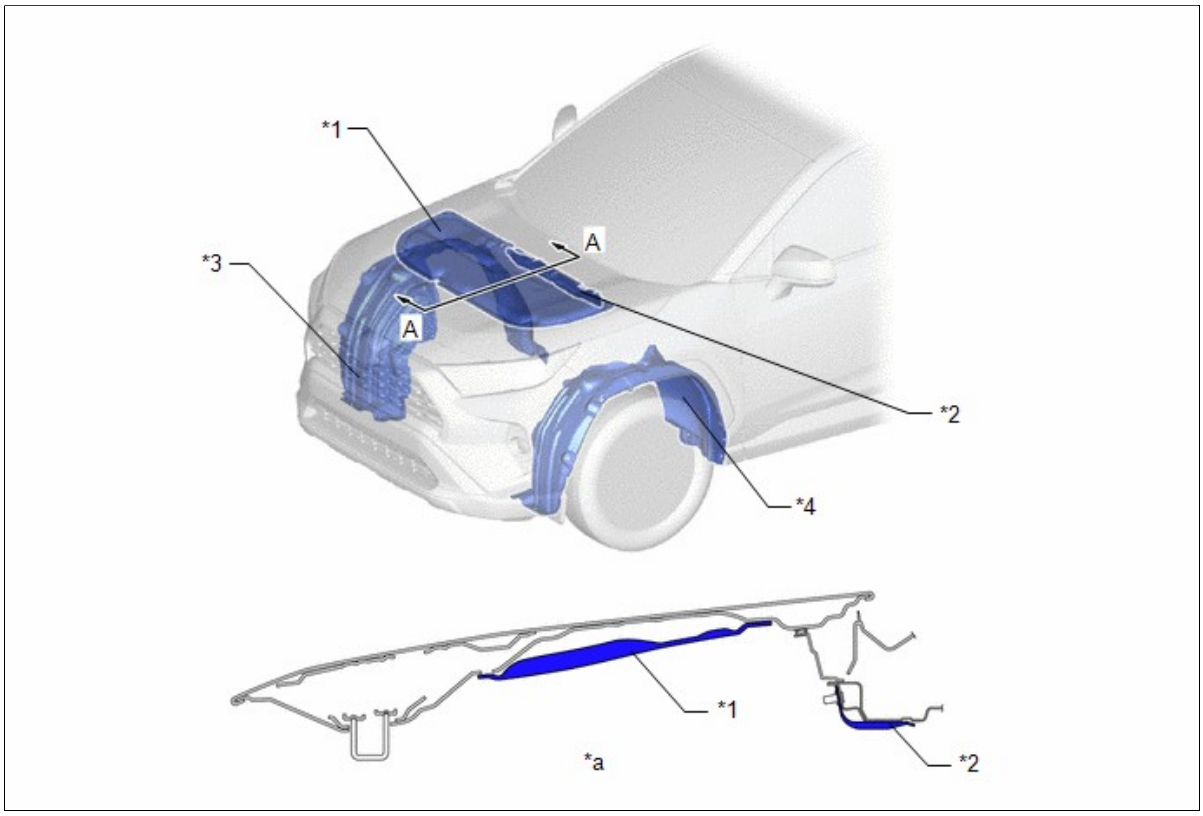


*a	A - A Cross Section	*b	B - B Cross Section
*c	C - C Cross Section	*d	D - D Cross Section
*e	E - E Cross Section	*f	F - F Cross Section
*g	G - G Cross Section	*h	Sound Absorption Material

(d) Sound Absorption and Insulation Structure around Engine Compartment

(1) A hood insulator, cowl top panel insulator No. 1 and front fender liner LH and RH are provided. This achieves excellent sound insulation performance.

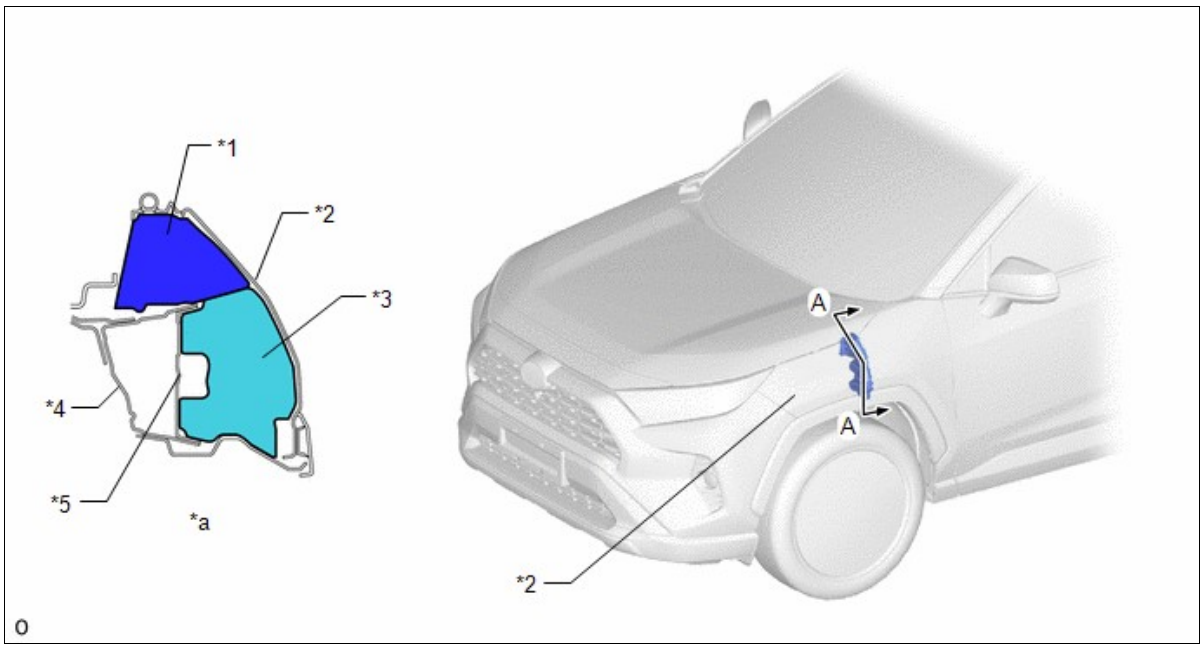
Insulator and Fender Liner (This illustration is an example only.)



*1	Hood Insulator	*2	Cowl Top Panel Insulator No. 1
*3	Front Fender Liner RH	*4	Front Fender Liner LH
*a	A - A Cross Section	-	-

(2) A front side air guide is used in the front fender to reduce the noise which travels through the fender toward the cabin.

Front Side Air Guide (This illustration is an example only.)

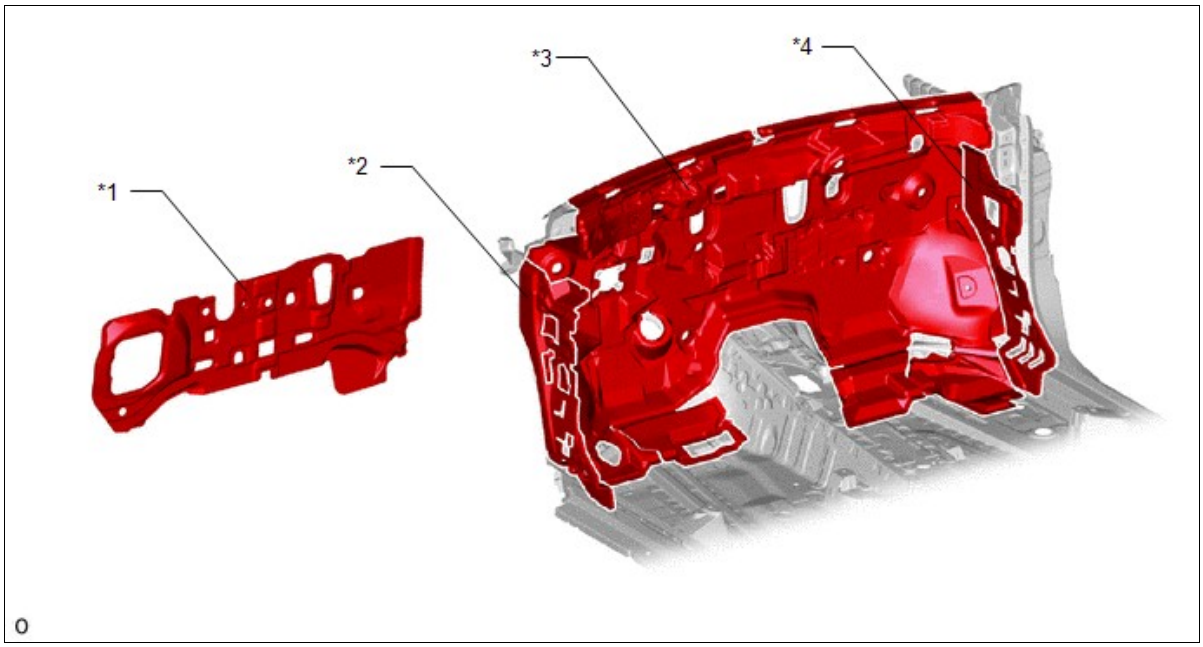


*1	No. 1 Radiator Grille Seal	*2	Front Fender Panel LH
*3	Radiator Grille Side Air Guide LH	*4	Front Apron to Cowl Side Member Upper LH

*5	No. 2 Side Panel Outer LH	-	-
*a	A - A Cross Section	-	-

(3) A dash panel insulator assembly and front panel side silencer No. 1 LH/RH are provided on the side of the dash panel facing the vehicle interior. As a result, mechanical noise from the engine compartment is insulated, ensuring excellent quietness.

Dash Panel Insulator Assembly (This illustration is an example only.)

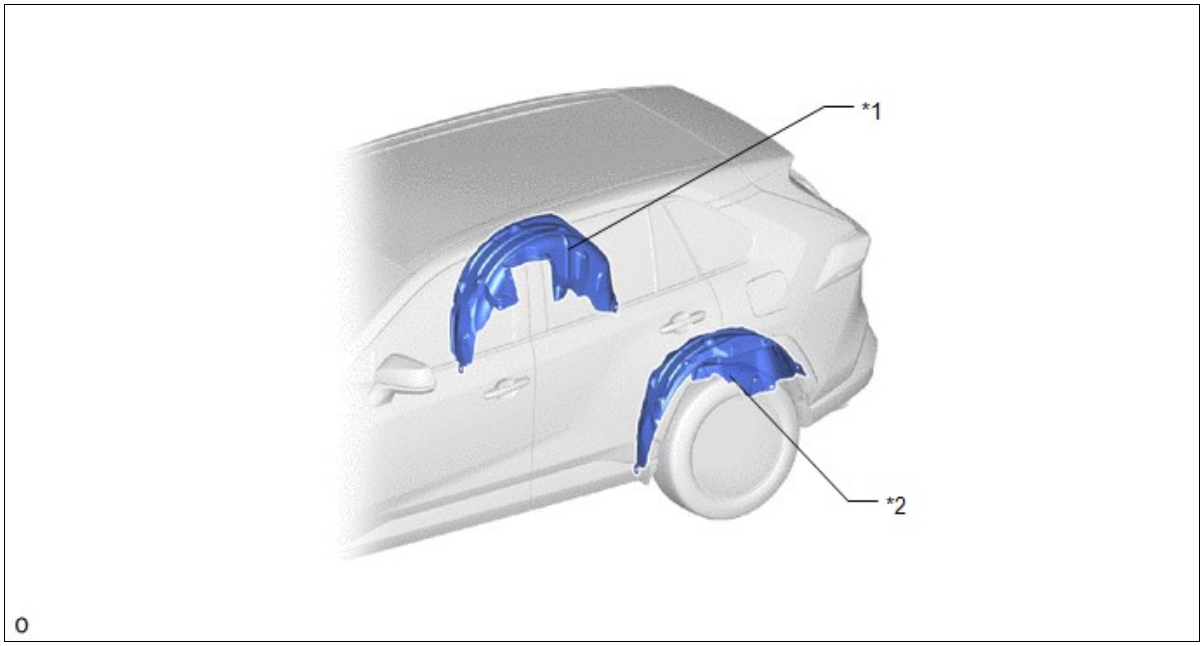


*1	Dash Panel Insulator OUT	*2	No. 1 Front Panel Side Silencer LH
*3	Dash Panel Insulator Assembly	*4	No. 1 Front Panel Side Silencer RH

(e) Sound Absorption and Insulation Structure around Rear Body

(1) A rear wheel house liner is provided. This achieves excellent sound insulation performance.

Fender Liner (The illustration shown is an example only.)



*1	Rear Wheel House Liner RH	*2	Rear Wheel House Liner LH

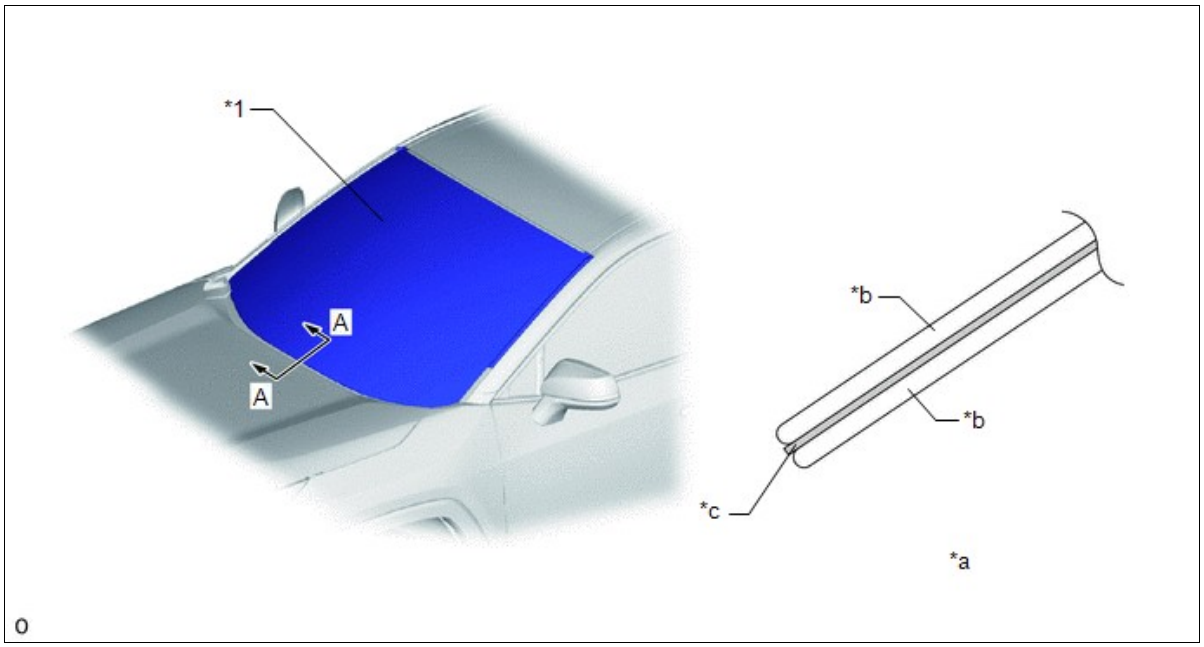
(f) Windshield Glass

- An acoustic layer laminated glass* is used for the windshield glass sub-assembly, reducing noise that enters from the outside to the cabin.

HINT:

*: Glass including a high level of sound proofing interlayer with a laminated glass structure (Glass - Interlayer - Glass)

Windshield Glass (This illustration is an example only.)

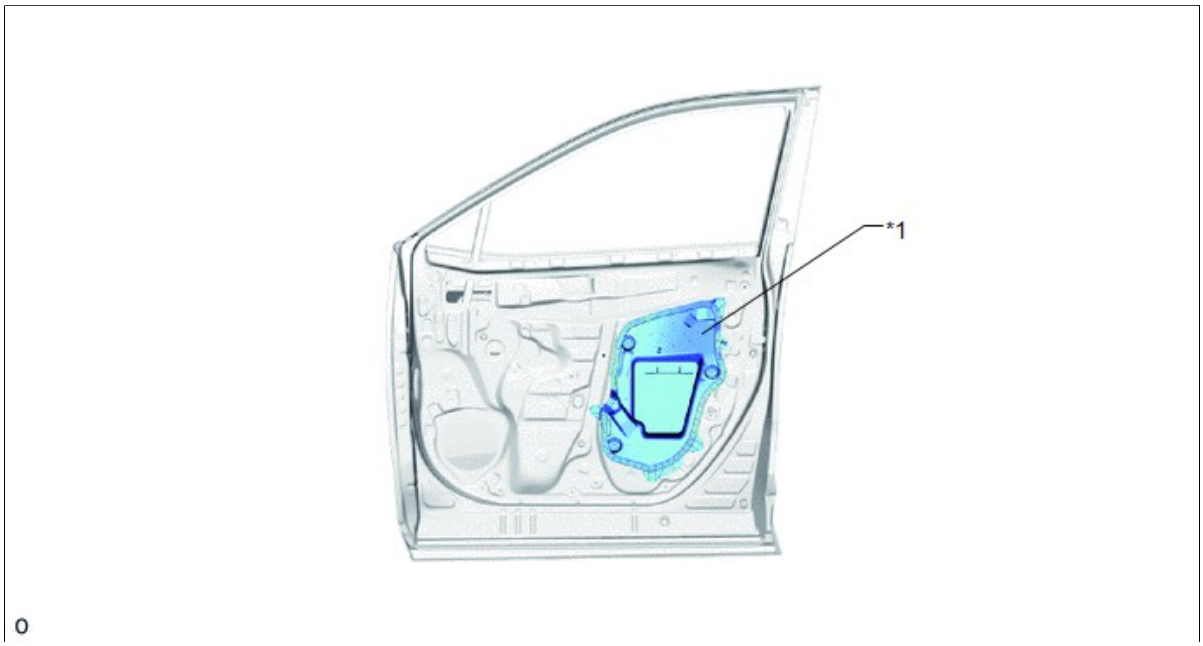


*1	Windshield Glass Sub-assembly	-	-
*a	A - A Cross Section	*b	Glass
*c	Interlayer Film (Acoustic Layer)	-	-

(g) Door

(1) A polypropylene resin service hole cover is used, reducing noise that enters from the outside to the cabin through the doors.

Front Door Service Hole Cover (This illustration is an example only.)



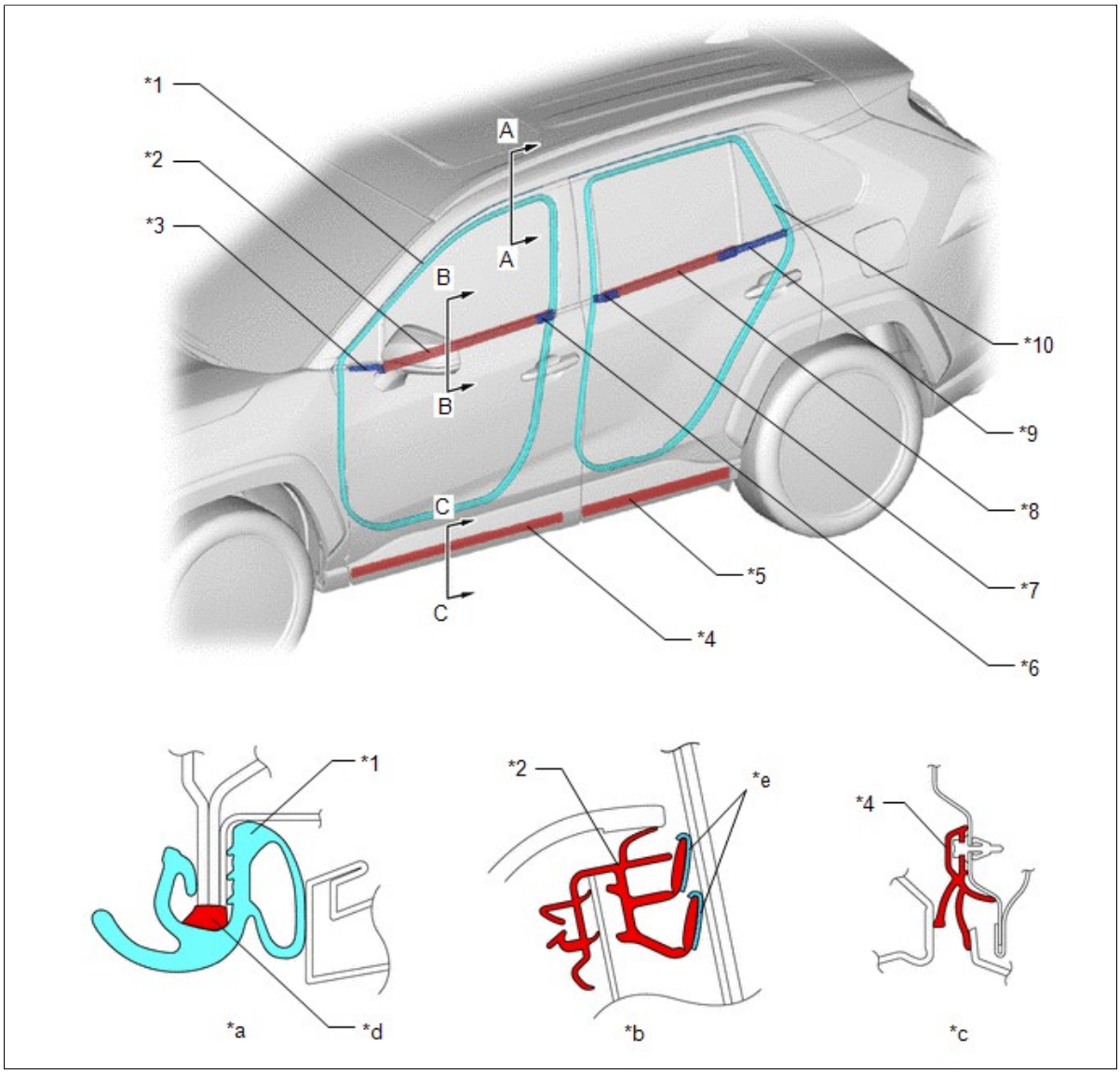
*1	Front Door Service Hole Cover RH	-	-

(2) Weatherstrips (front door opening trim weatherstrip, rear door opening weatherstrip, front door weatherstrip No. 2 and rear door weatherstrip No. 5) are used around the entire circumferences of the doors, reducing noise that enters from the outside to the cabin through the doors.

(3) Polyester is used as a flocked material for the inner weatherstrips (front door glass weatherstrip inner and rear door glass weatherstrip inner) to suppress noise, achieving a high level of sound insulation performance.

(4) Resin corner pieces (front door belt seal front, front door belt seal rear, rear door belt seal front and rear door belt seal rear) are used at the front and rear of the belt line to fill the clearance, ensuring a high level of sound insulation performance.

Front and Rear Door (This illustration is an example only.)

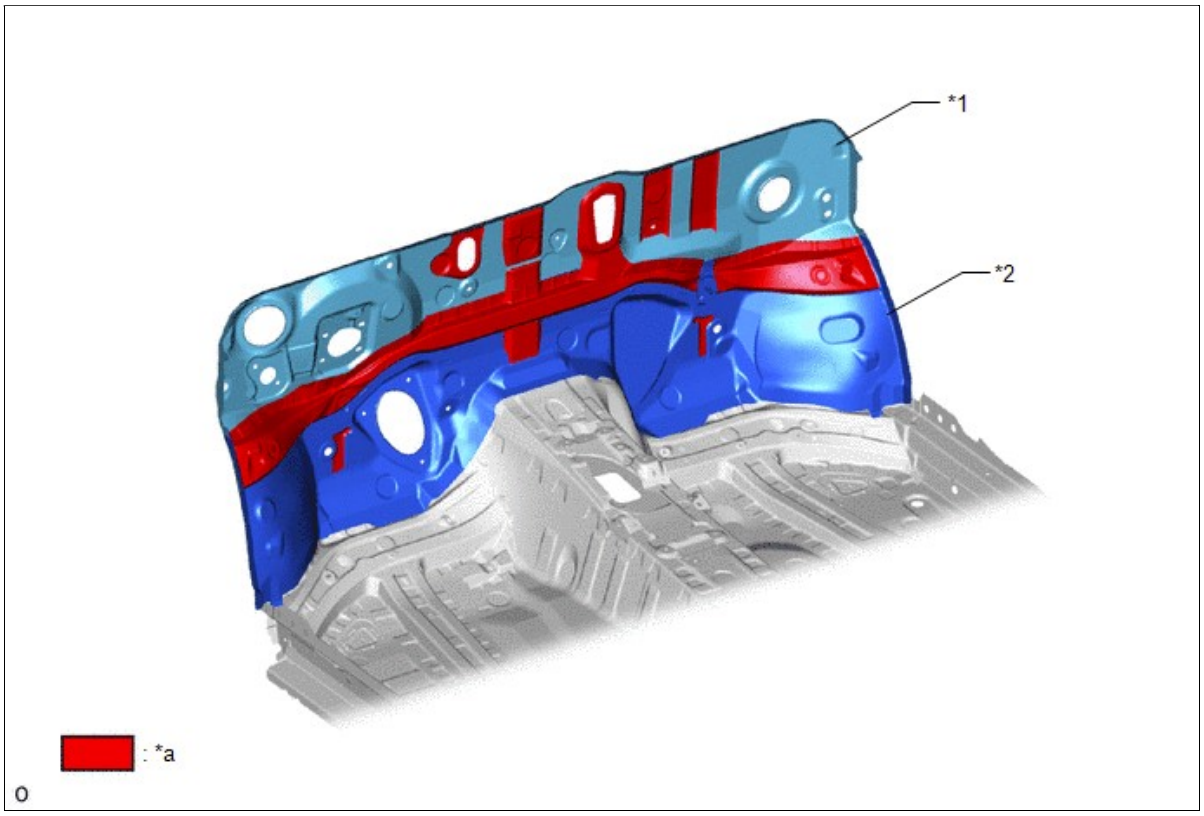


*1	Front Door Opening Trim Weatherstrip LH	*2	Front Door Glass Weatherstrip Inner LH
*3	Front Door Belt Seal Front LH	*4	Front Door Weatherstrip No. 2 LH
*5	Rear Door Weatherstrip No. 5 LH	*6	Front Door Belt Seal Rear LH
*7	Rear Door Belt Seal Front LH	*8	Rear Door Glass Weatherstrip Inner LH
*9	Rear Door Belt Seal Rear LH	*10	Rear Door Opening Trim Weatherstrip LH
*a	A - A Cross Section	*b	B - B Cross Section
*c	C - C Cross Section	*d	Sponge
*e	Flocked Material	-	-

(h) Floor Panel

- The conventional integrated structure of the dash panel is changed to a vertical split type.
- The thickness of the dash panel No. 2 used near the footwell is increased and cross members and beads are provided, suppressing the amount of vibration transmitted into the vehicle during driving.

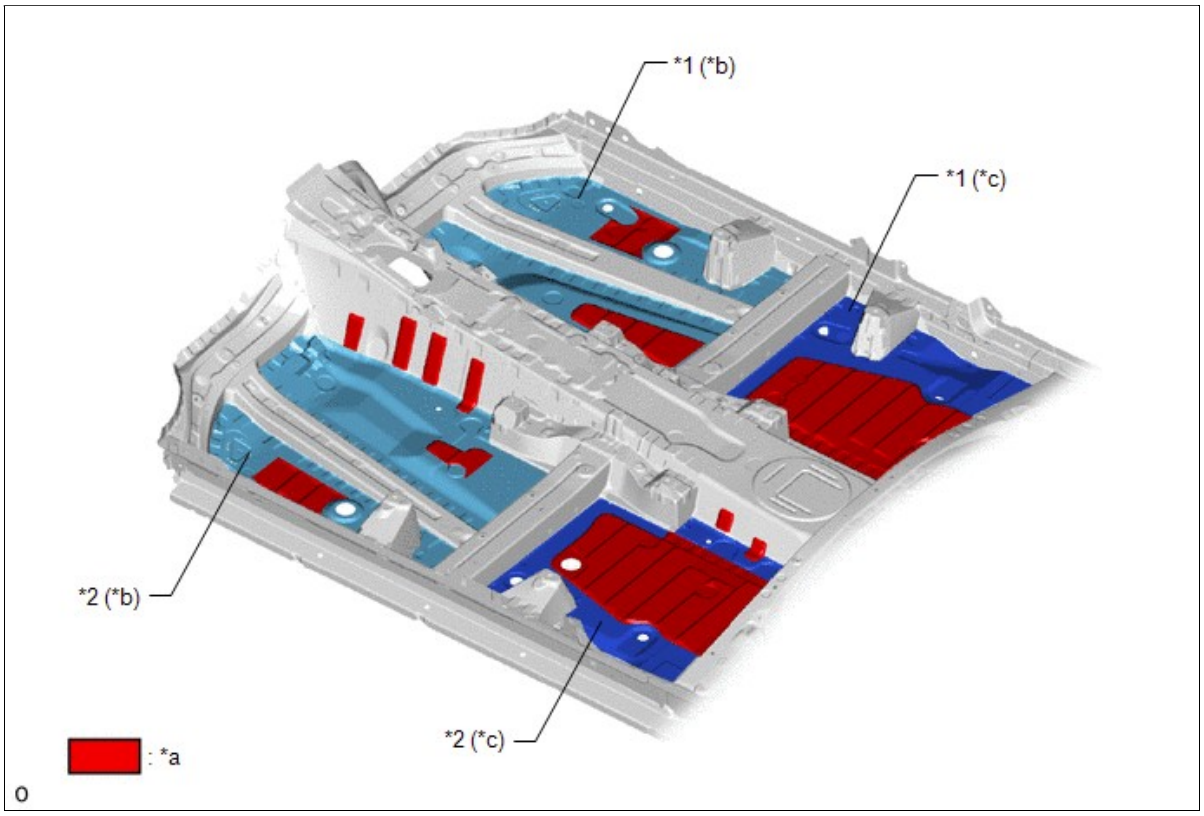
Dash Panel (This illustration is an example only.)



*1	Dash Panel	*2	Dash Panel No. 2
*a	Crossmember and Bead	-	-

- The front and rear parts of the front floor pan are made different thicknesses and beads are provided, suppressing the amount of vibration transmitted into the vehicle during driving.

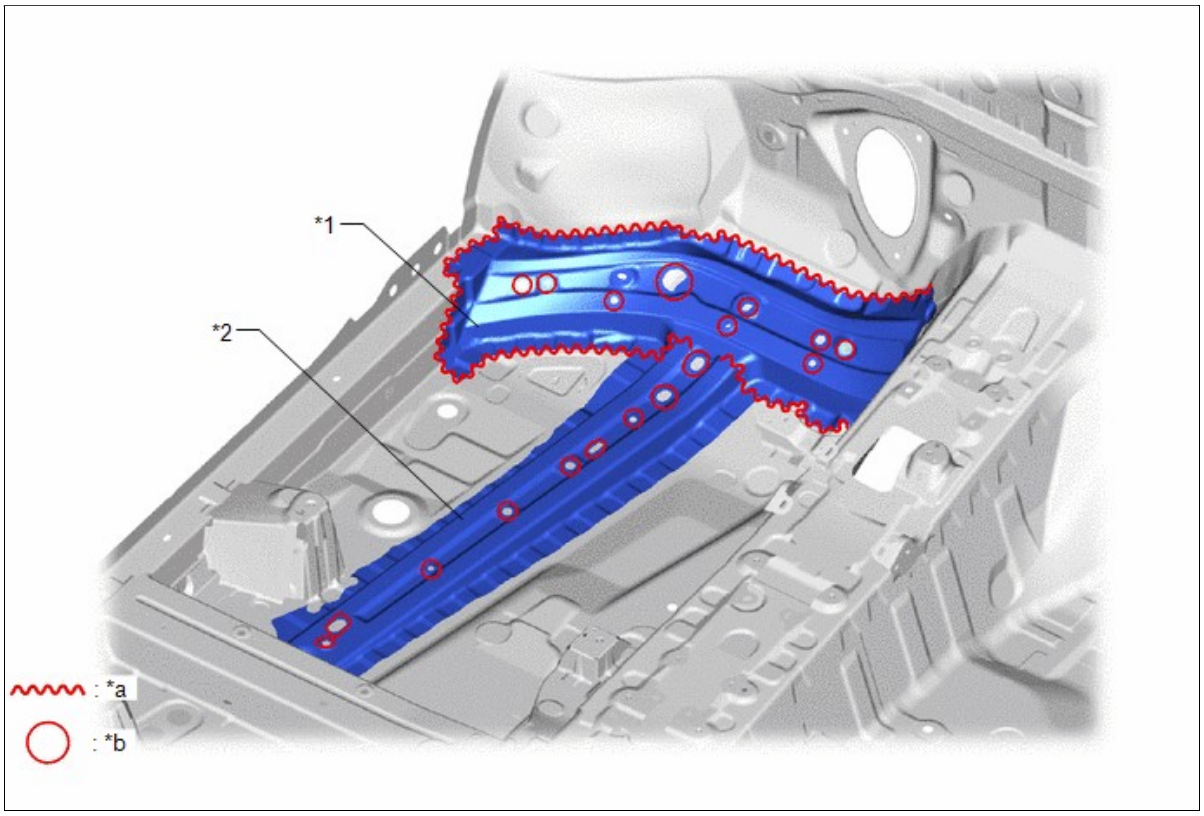
Front Floor Pan (This illustration is an example only.)



*1	Front Floor Pan RH	*2	Front Floor Pan LH
*a	Bead	*b	Sheet Thickness: 1.2 mm (0.0472 in.)
*c	Sheet Thickness: 0.65 mm (0.0256 in.)	-	-

- Edge sealant and plugs are added to the front cross to front panel member reinforcement and front floor side reinforcement near the front passenger footwell, improving quietness.

Front Floor (This illustration is an example only.)

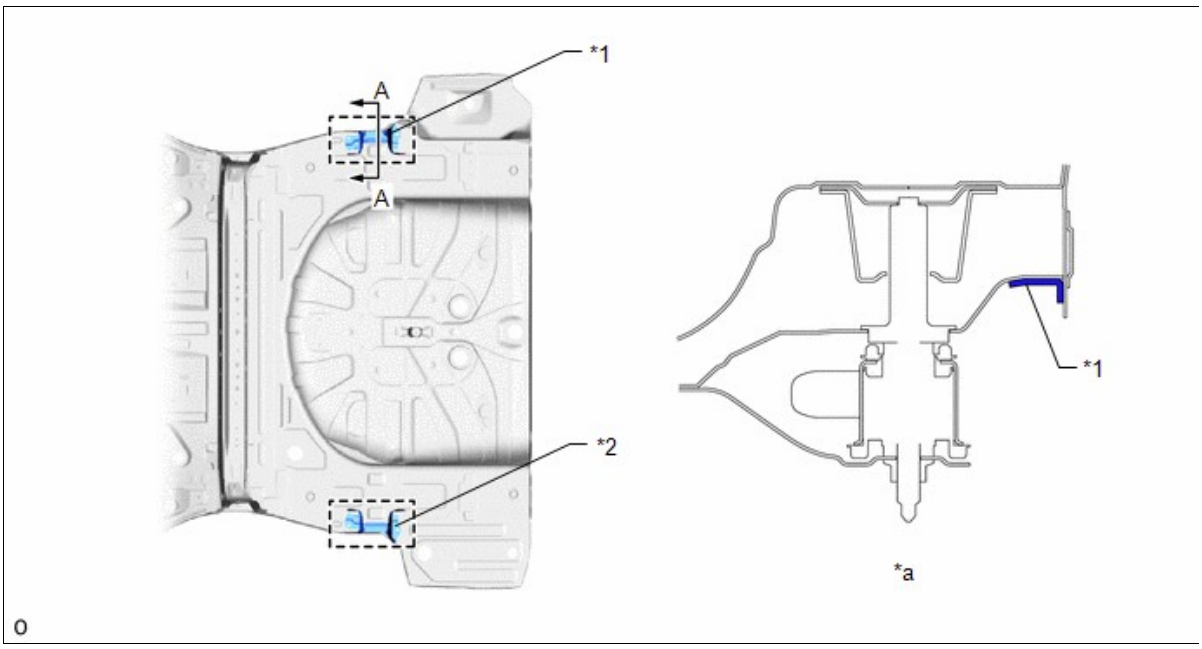


*1	Front Cross To Front Panel Member Reinforcement LH	*2	Front Floor Side Reinforcement LH
*a	Edge Sealant	*b	Plug

(1) Rear Floor

- A new rear floor side member rear plate RH and LH are used. As a result, rear floor deformation is suppressed, improving the body vibration characteristics related to road noise.

Rear Floor (This illustration is an example only.)



*1	Rear Floor Side Member Rear Plate RH	*2	Rear Floor Side Member Rear Plate LH

*a	A - A Cross Section	-	-