BODY AND PAINT

General Information

Specifications

Service materials of Collision

Body collision accidents usually cause symptoms such as construction deformation, steel plate cracks, weld points desoldering, etc., sometimes also cause local damage of other assembling parts such as engine and chassis, etc. Adhesive, sealant, anti-loose solvent, surface protection materials, anti-corrosion materials and chemical materials may be used during the body collision service, so please operate it strictly in accordance with the use, scope of use and use specifications in the Product Description. Select the service materials with the same functions according to the functional requirements of parts and materials in the process of body service. The service materials that may be used in the process of body service are listed in following table for reference only.

Products	Base materials	Usage	Recommended Model
Car Seal Gum	One-component polyurethane	• It used for the bonding of components such as body outer panel, interior and exterior decoration, body construction, etc. This adhesive has strong adhesion and cohesion and has good adhesion with metal, various paint surfaces, etc.	• TONSAN : 1922, 1923
Weld Seal Gum	One-component polyurethane type	• As the room temperature solidifying type adhesive, it is used for the sealing of body welds and the fine sealing of doors, engine cover and luggage compartment (trunk) foldings.	• CAPAC: C8802
Anti-stone-chipping primer	Rubber and resin	• As the room temperature solidifying type chassis protection adhesive, it is used to form a permanent anti-aging elastic corrosion protection coating at the bottom and wheel house, and there is no crack at low temperature.	• CAPAC: C312DW

Products	Base materials	Usage	Recommended Model
		• This product can replace PVC coating because of the excellent functions such as anti-rust, sound insulation, anti-stone-chipping, anti-oxidization and protective coating.	
Windshield Gum	One-component polyurethane	• As the room temperature solidifying polyurethane adhesive, it is used for direct adhesion and sealing of car window glass. • This adhesive has strong adhesion performance, when it reacts with moisture in the air, it forms excellent performance such as high strength, anti-aging, anti-vibration fatigue, low temperature resistance and no corrosion, etc.	• CAPAC: C8802 • TONSAN : 1956, 1924
Primer	-	• Before applying windshield gum, apply a primer to the body and glass to make the windshield and the body bond more firmly.	-
Cleaner	-	• It’ s used to clean all surfaces contacting with premier coating and adhesive.	-
Pressure Sensitive Tape	Acrylic tape	• It is used for bonding such as scuff strip, name plate, fender apron, door edge protection, various body trim strips, etc. This tape has excellent weather	• 3M 4229P, 4215, 4221L

Products	Base materials	Usage	Recommended Model
		resistance and durability.	
Heat Sensitive Tape	Acrylic tape	• It is mainly used for rubber weatherstrip system on the car. This type of tape should have a strong bonding force and strong sealing performance to avoid the gap and corrosion problems caused by poor bonding.	• 3M 4237P
Primer for Tape	-	• Select different primers according to the materials of bonding surface. The bonding surface should be clean, and apply the primer evenly to the surface to be adhered with a brush after it is completely dry, and apply the tape after it is dry. The tape has strong adhesion.	• 3M C-100, K-500/ 520, N-200

Basic Description of Body Service

Body service should be carried out by professional technicians in accordance with the manufacturer's requirements in order to keep the guarantee of “no rust” and “no paint defects”.

1. Only use the materials selected by the manufacture.
2. It’s necessary to apply paint protective coating inside the body firstly when welding body outside metal.
3. It’s necessary to use zinc coating during spot welding.
4. Apply a layer of filling coating inside and outside welding position before performing air seal.
5. Apply a protective layer to prevent stone collision before using paint to protect the chassis.
6. All openings at this position should be fixed with fixing parts after spraying paint to the coating.
7. In some cases, it’s necessary to raise the vehicle to lift platform because the distribution of each component of the body when removing parts.
8. It’s necessary to remove battery connectors before performing spot welding. Check if the ventilation condition is good enough before welding.
9. Pay attention to other vehicles in this area when repairing the body within a certain area.
10. Be careful when perform sandblasting or welding around fuel tank or fuel system parts.
11. Pay attention to preventive measures of preventing accidents when performing body repairing or sandblasting.

12. The spot welding current should be increased by 30% with a pointed electrode, and the clamping force of the electrode should be increased when welding galvanized steel plate; the welding current should be further increased when performing gas shielded welding.
13. Neither the air conditioning parts nor the parts that may be heated can not be welded on the vehicle. When painting and repairing the frame, the temperature should not exceed 80˚C in the baking furnace or in preheating stove.

The following measures have to be taken in the process of welding to prevent electrical welding device from bumping.

1. Connect the electrical welding device ground wire to welding position. Carefully check that there is no part or insulator part between ground wire and spot welding position during connection.
2. Firstly remove ECU and electrical device or circuits to avoid contacting ground wire or welding rod.

Calibration

The production of body and chassis is completed through low temperature tempering and cold casting process on the assembly line. Therefore, it’s necessary to use the same process to restore it to its original appearance and it cannot be heated after the metal part is damaged in an accident. If the damage is so severe that it cannot be restored, the damaged part can only be removed after the connector surface has been calibrated.

Safety Precautions

It’s necessary to observe the following safety precautions when performing body metal plate service:

1. It’s necessary to wear protective clothing, goggles, gloves and working shoes when performing body metal plate welding, cutting and polishing.
2. Ensure the ventilation is well in welding area.
3. Disconnect battery and cover the post before welding.
4. If spark may be generated when working near the battery, it’s necessary to remove the battery.
5. Before removing the vehicle parts, the vehicle should be fixed on the lifting frame to avoid the change of the vehicle gravity, which may affect the operation safety.
6. Connect the ground wire of the welding device directly to the parts that need to be welded, and ensure that there is no conductive part between the ground point and the welding point when operating.
7. Ground wire or welding electrode is forbidden to contact with electronic control unit and cable.
8. Never park an unprotected vehicle in the body service area, because splashing sparks may cause fire, damage paint surface and glass.
9. Special care should be taken when polishing and welding near fuel tank or other components that contain fuel, and all suspected components that may affect safety should be removed.
10. Never weld, hard solder or soft solder any compartment of air conditioning system that contains refrigerant, or weld other parts of vehicle that may cause the temperature of air conditioning system components to rise, which may cause explosion of the air conditioning system. If it’s necessary to carry out electric welding near the refrigerant hose, the refrigerant must be recovered, because the invisible ultraviolet ray generated when performing electric welding can penetrate the refrigerant hose and cause the refrigerant to decay.
11. It’s necessary to disconnect the battery ground wire when operating the airbag system or carrying out body calibration; the temperature around airbag components should not exceed 100℃ (212°F).

State of Components

Before the repaired car or parts are sent to the paint shop for painting, its surface must be flat, filled and polished with abrasive paper. The preparation process is completed by metal plate worker. The body and floor compartments are mainly formed by cold stamping with steel plates. Therefore, the same method should be used to restore the shape of the damaged area caused by an accident. If the damaged area cannot be restored to the original appearance, the adjacent area should be calibrated, the damaged area

should be removed and replaced according to the integrity of the parts. Do not cut the parts separately. The rigidity, driving safety and service convenience of the vehicle will be affected after cutting and welding.

Description of Welding Types

Common welding types include spot welding, gas shielded welding and soldering. Never reduce the number of welding spots when performing spot welding. Generally speaking, when the spot welding device can not be carried out, plug welding can be carried out by means of gas shielded welding after drilling it. When spot welding is used, if it is the connection of three-layer plates, only the outer plate is replaced and the welding points must be placed on the original welding points. When spot welding is used, single weld, double weld and double offset weld can be generated. When gas shielded welding is used, lap weld, continuous weld and continuous weld (intermittent) can be generated. Soldering is often used to weld and repair areas with low tensile strength and relatively thinner component thickness.

Anti-corrosion Treatment

1. It’s necessary to use approved materials to restore standard anti-corrosion layer after service.
2. It’s necessary to apply primer to inside and outside of all welds before sealing.
3. It’s necessary to apply sealant to metal plates with primer coating.
4. It’s necessary to seal lap metal plates, metal edges, butt welds and welds with sealant.
5. Apply long-term deck protection agent to the vehicle deck.
6. It’s necessary to deal with the cavity in the service area with the protection material in the cavity after spraying the finish paint.
7. Clean drain after the protection material in the cavity is dry.

Environment Protection Treatment Method of Car Disposal Parts

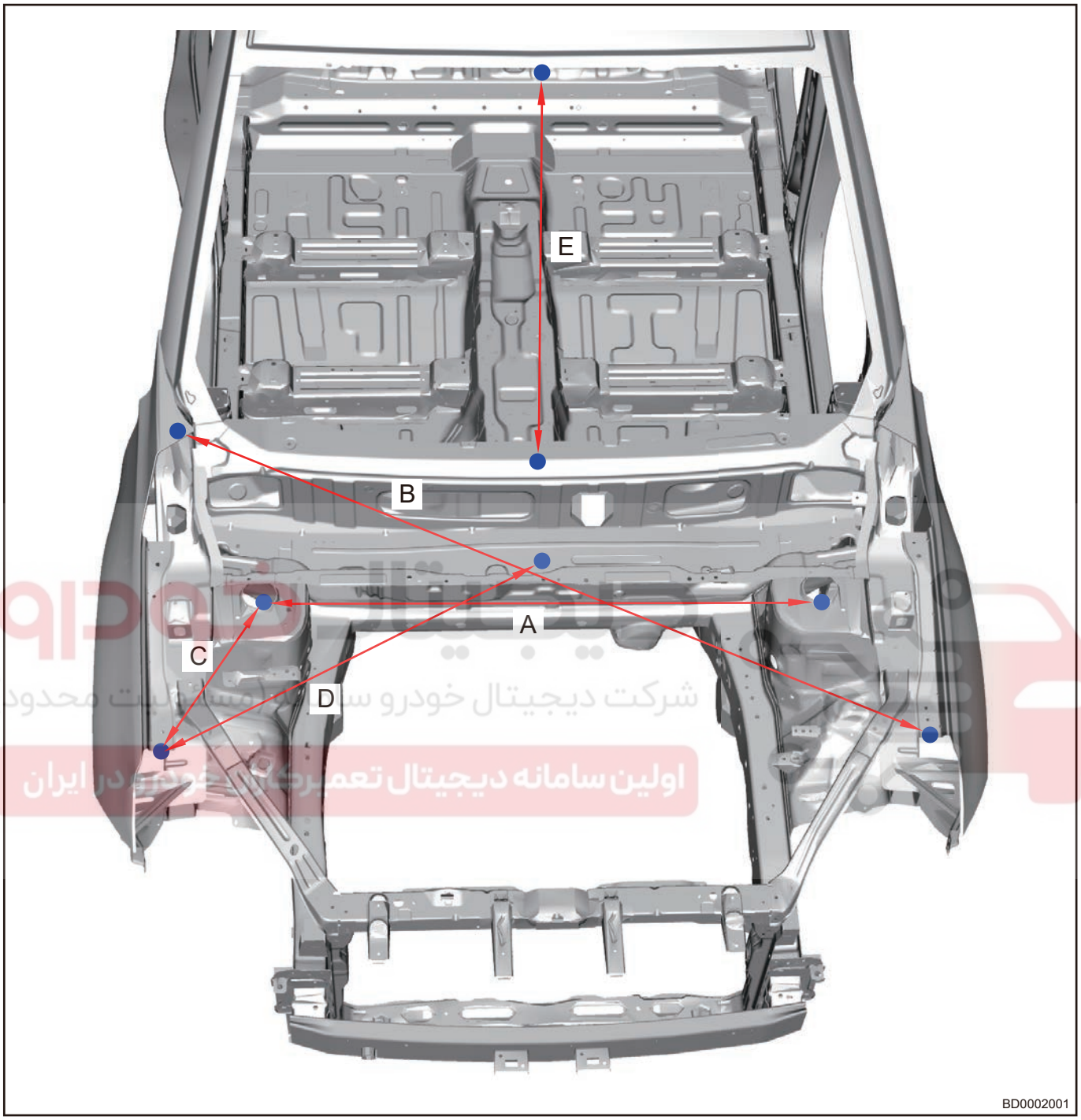
1. It’s necessary to collect disposal materials according to the types after car maintenance or service.
2. Classify disposal materials and check if they can be used repeatedly.

Body Dimensions

Hint:

- Gap dimensions are always in millimeter/inch.
- Use plastic gap adjustment gauge to adjust or check gap dimensions.

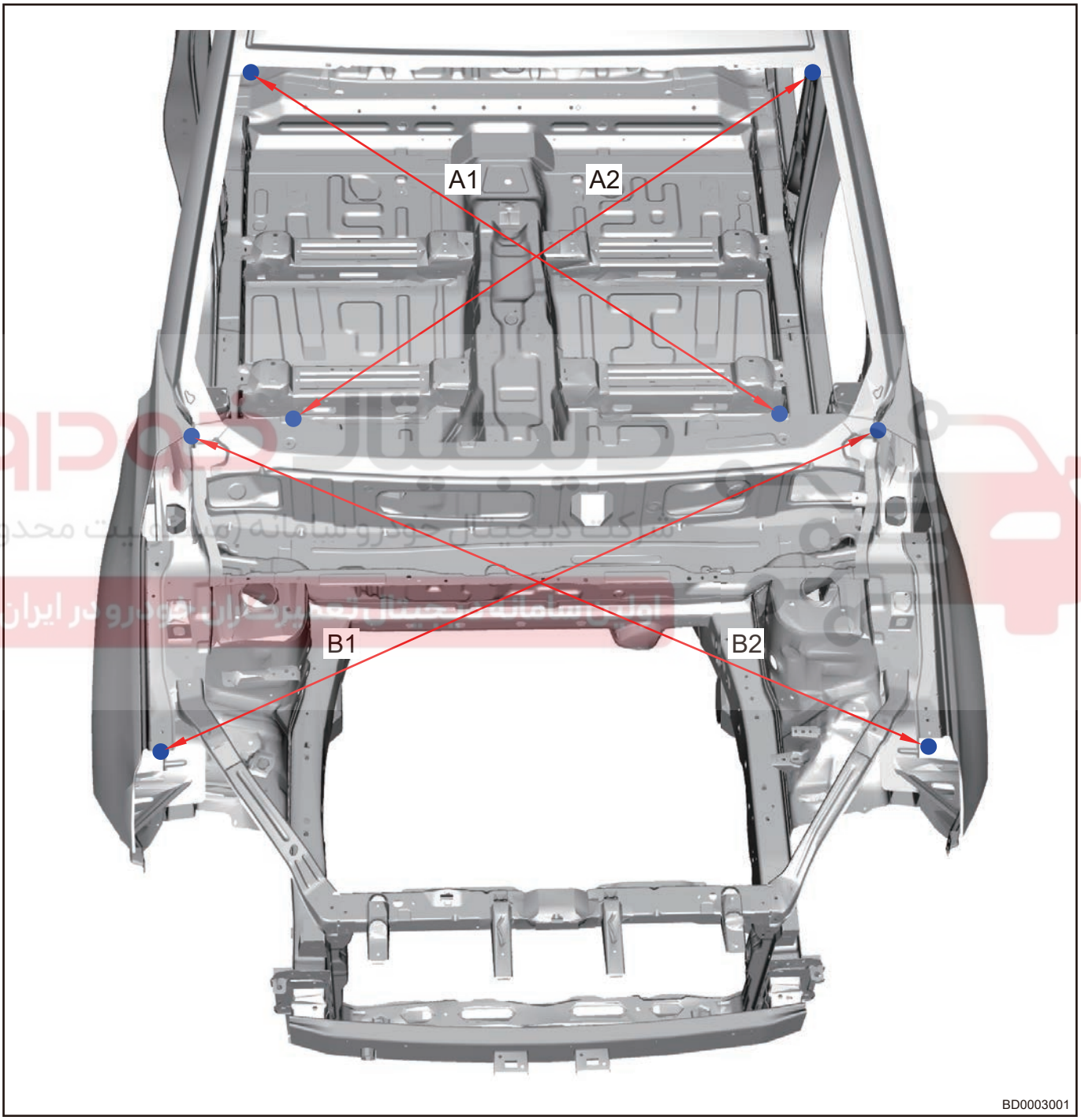
Dimensions of Engine Compartment and Windshield Frame



Dimension Code	Standard Value	Measuring Area
A	1144.8mm	Front suspension installation center
B	1599.5mm	Diagonal of wing fixing bolts
C	345mm	Distance between front suspension installation center and wing

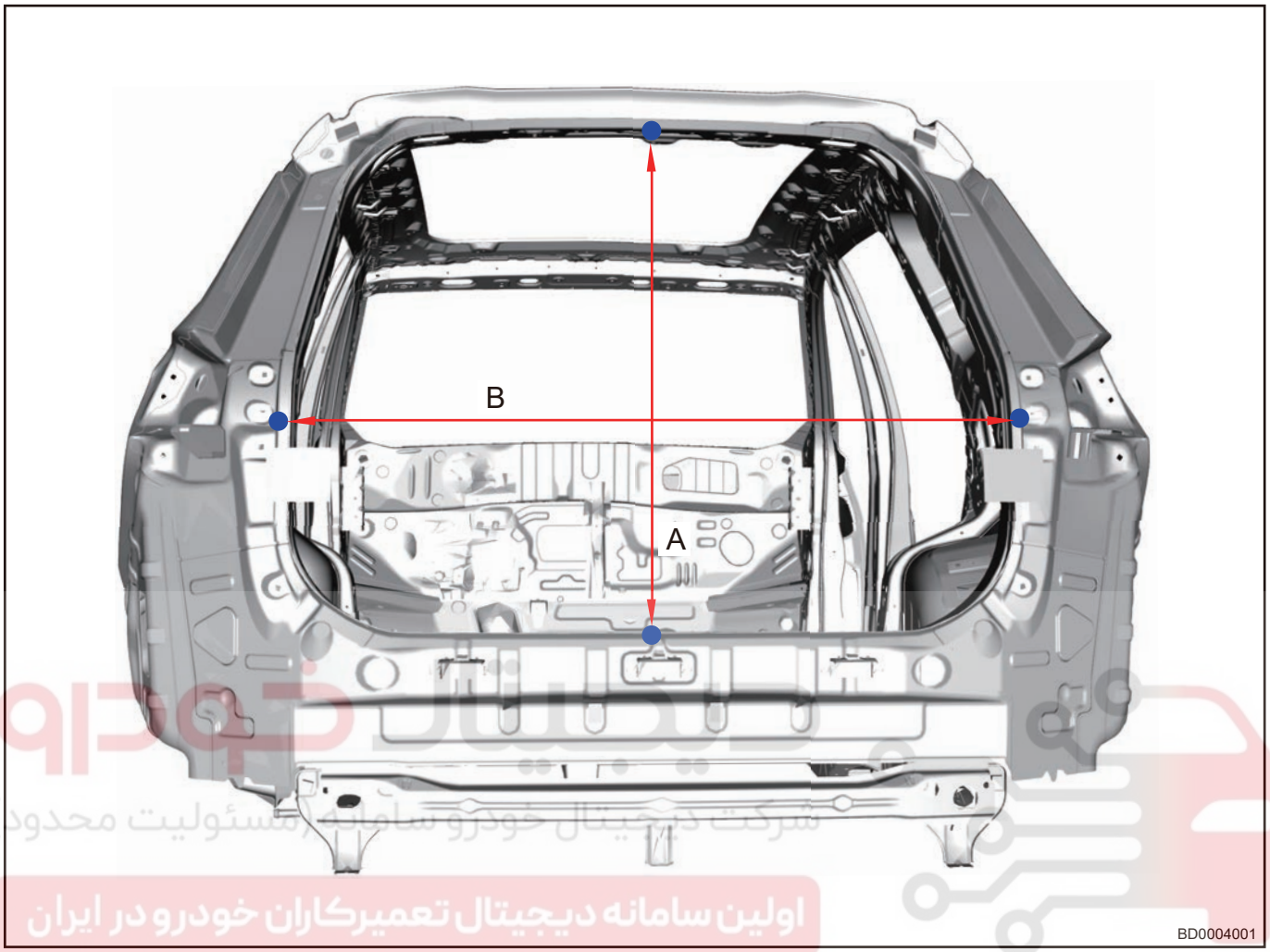
Dimension Code	Standard Value	Measuring Area
D	944.9mm	Distance between front baffle plate center and wing fixing bolt
E	759.2mm	Front windshield opening

Dimensions of Engine Compartment and Windshield Frame



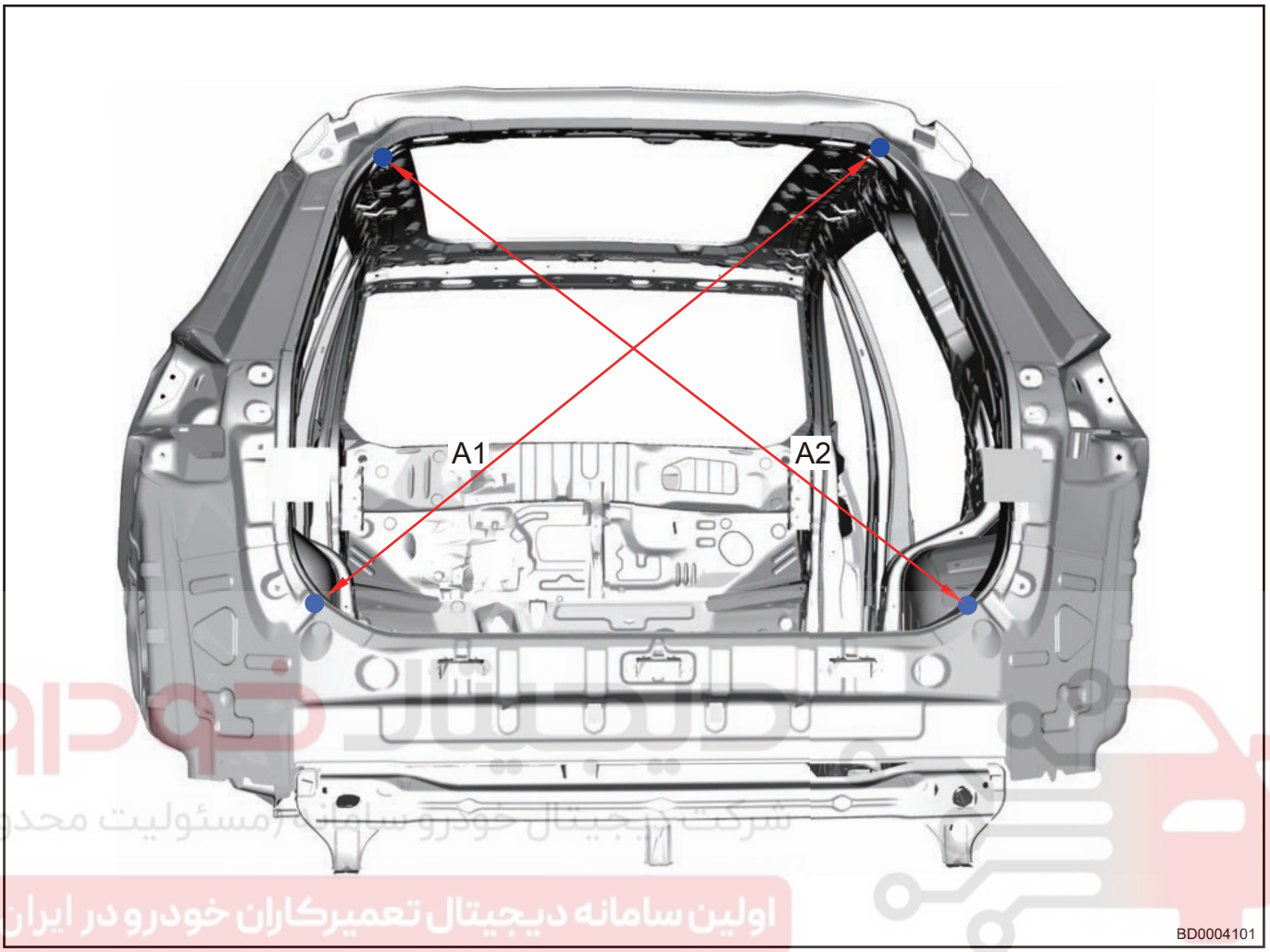
The values of a set of diagonals should be equal	
A1 = A2	B1 = B2

Check Dimension of Luggage Compartment Opening



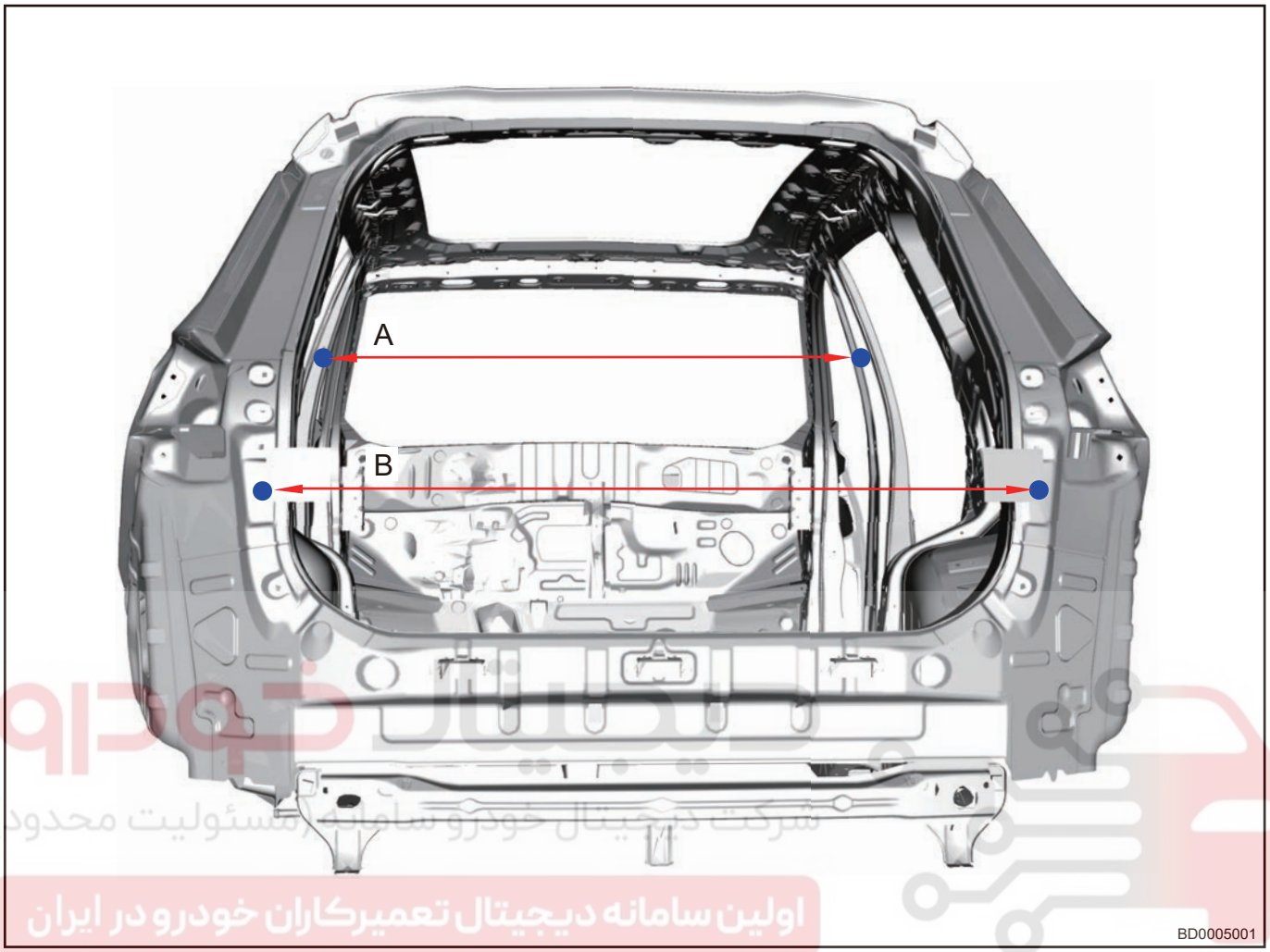
Dimension Code	Standard Value	Measuring Area
A	838.8mm	Luggage compartment opening
B	1097mm	Y-direction distance of luggage compartment

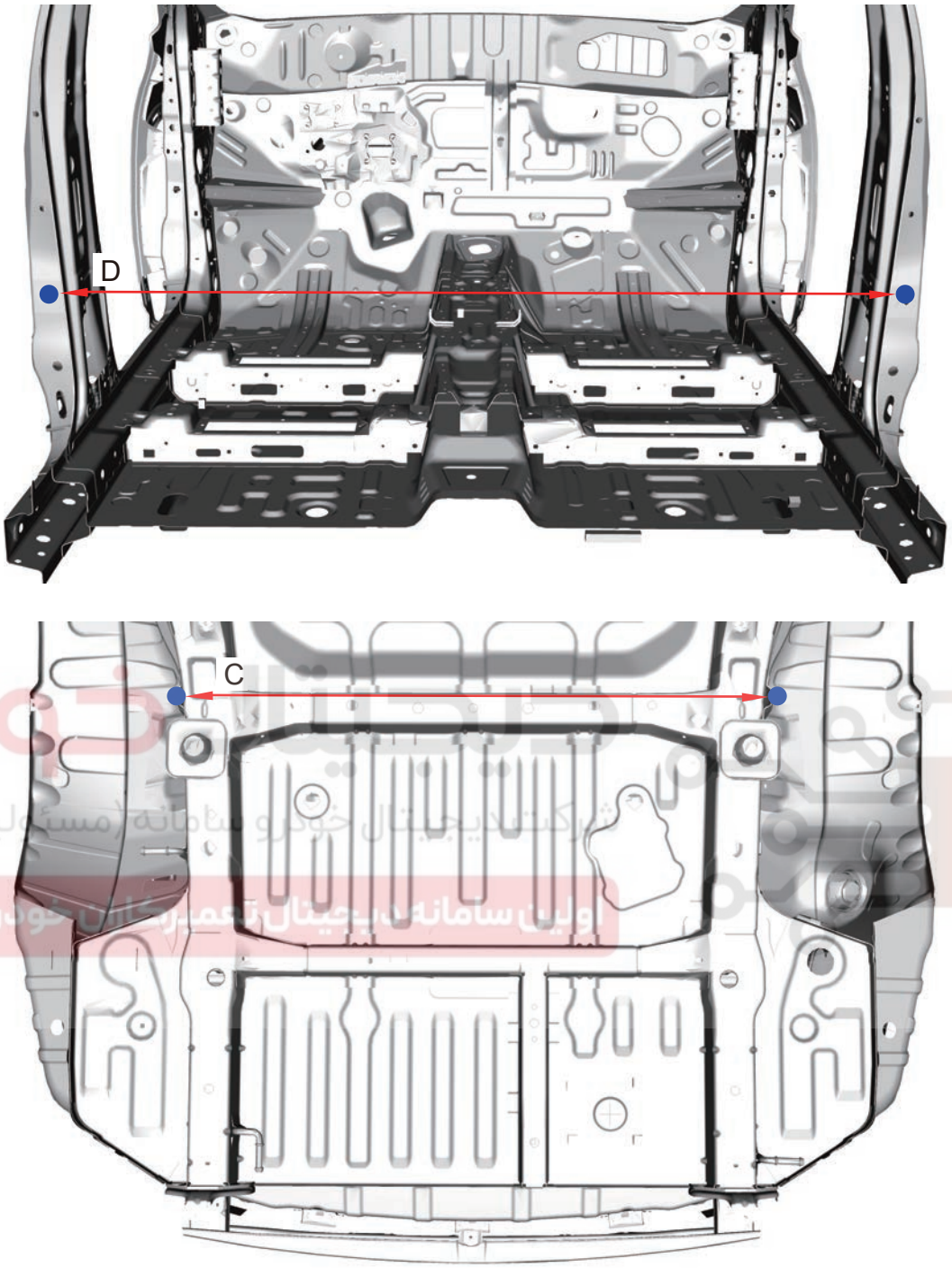
Check Diagonal Distance of Luggage Compartment Outer Frame



The values of a set of diagonals should be equal
A1 = A2

Check Dimension Between Body B-pillar and C-pillar

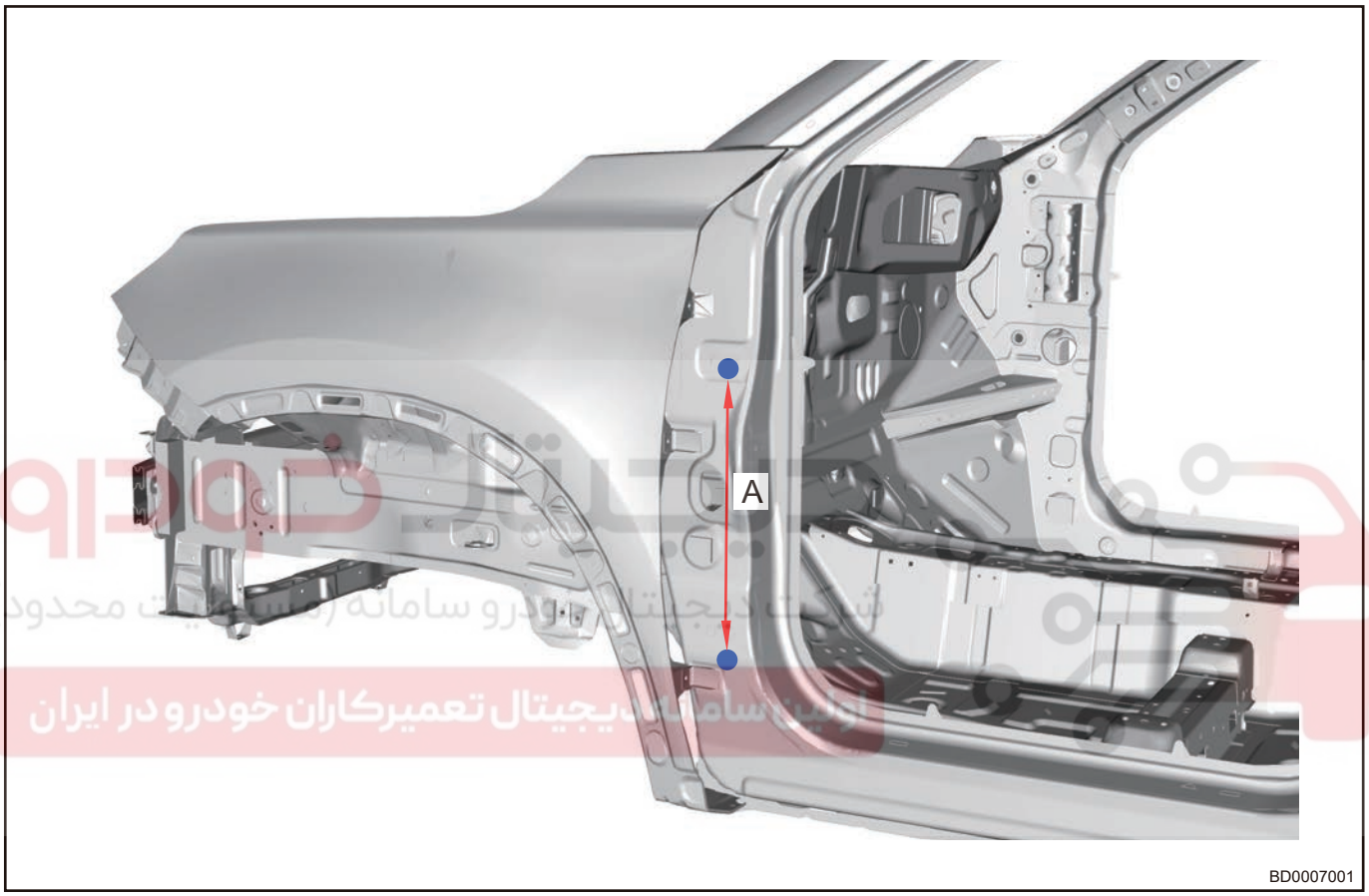




Dimension Code	Standard Value	Measuring Area
A	1559mm	Y-direction distance of B-pillar installation position
B	1339mm	Y-direction distance of front seat lock pillar belt holder

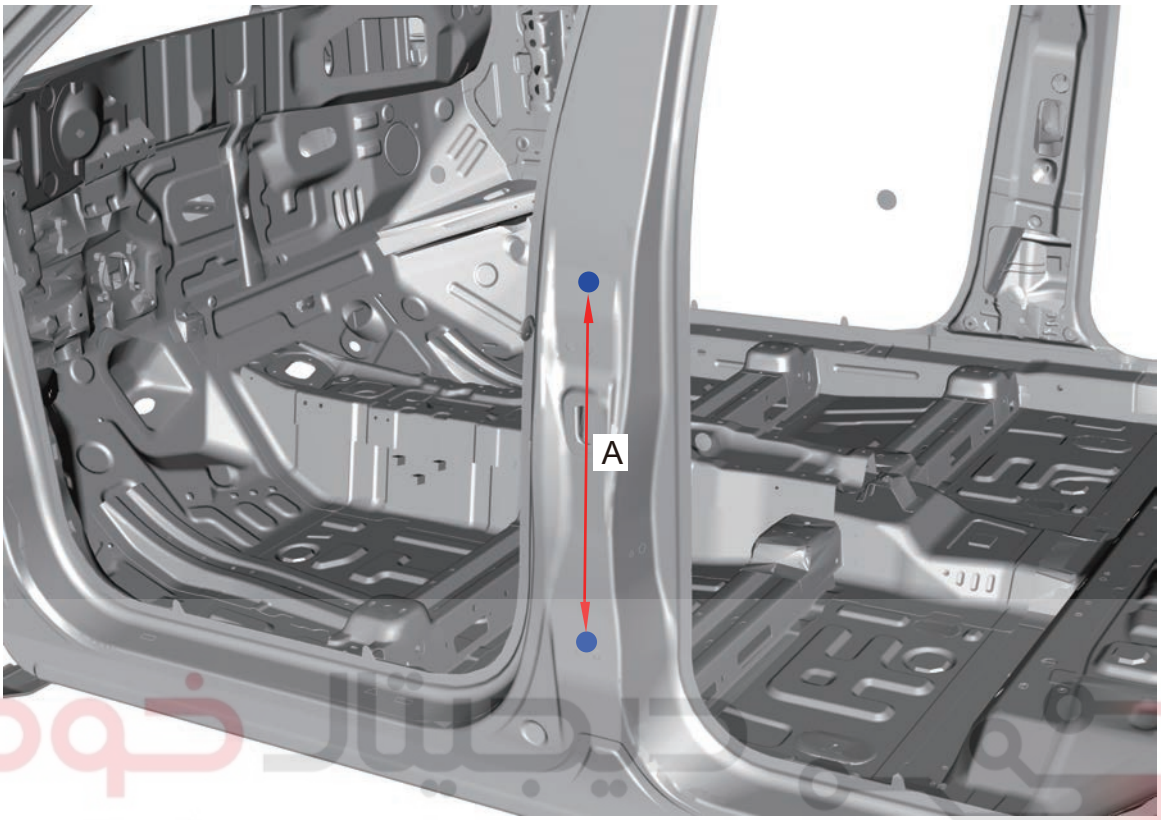
Dimension Code	Standard Value	Measuring Area
C	1180mm	Y-direction distance of rear suspension installation center position
D	1186.9mm	Y-direction distance of rear wing lock pillar installation position

Check Distance Dimension Between Body A-pillar Hinges



Dimension Code	Standard Value	Measuring Area
A	360mm	Z-direction distance of A-pillar hinge

Check Distance Dimension Between Body B-pillar Hinges



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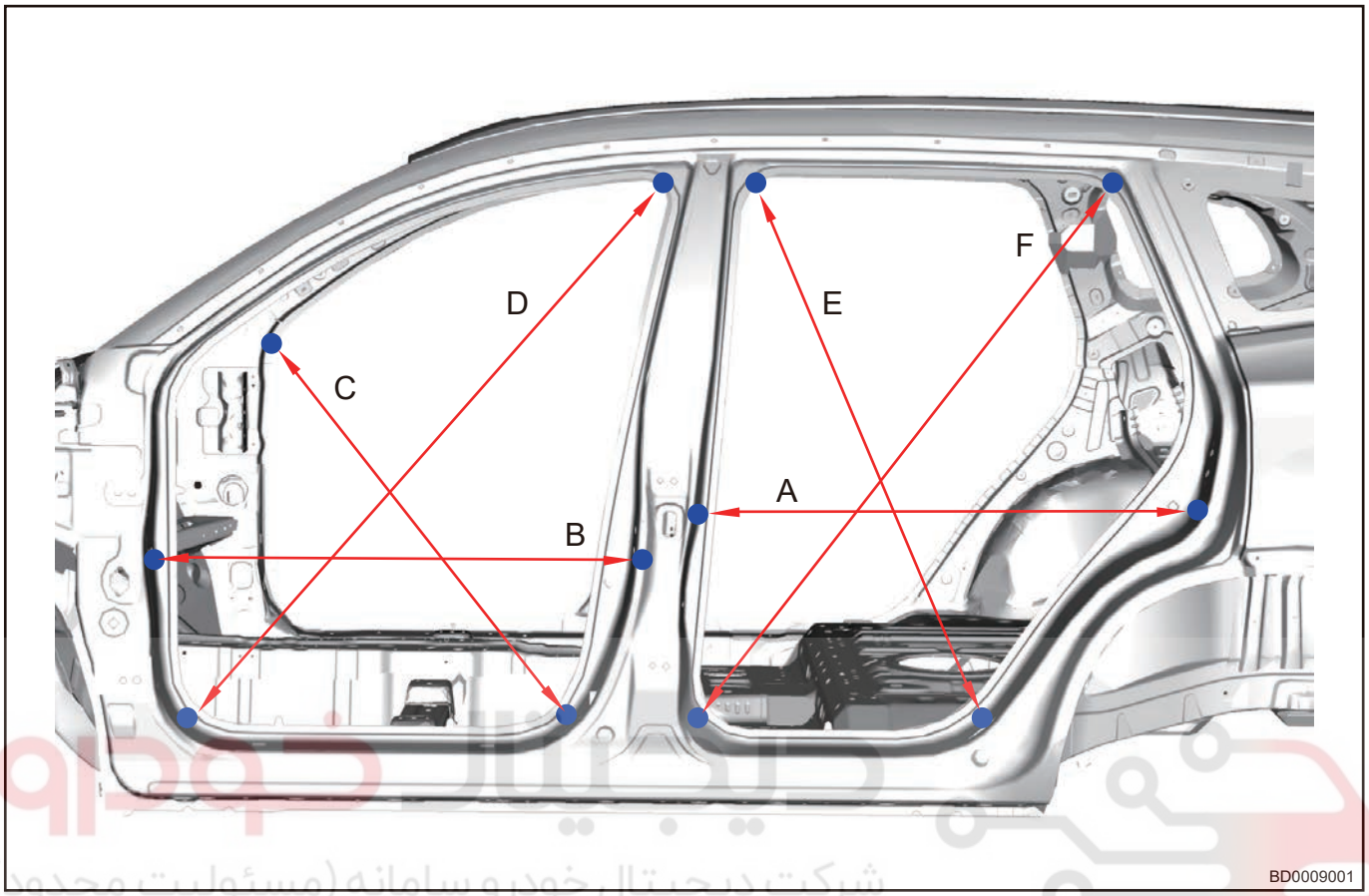
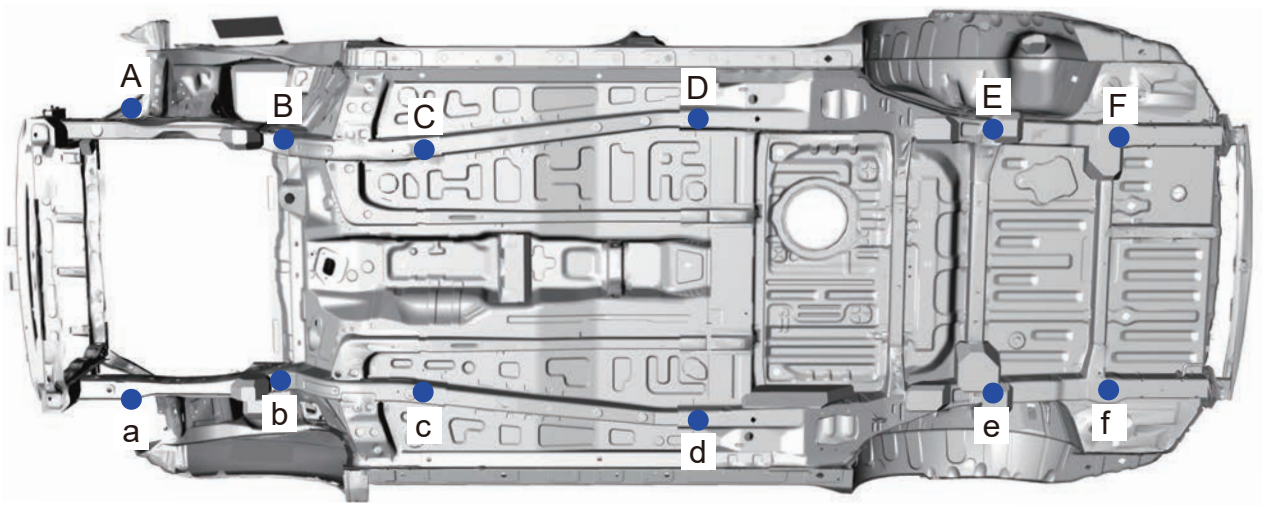
Dimension Code	Standard Value	Measuring Area
A	354mm	Z-direction distance of A-pillar hinge

Check Dimension of Front and Rear Doors Opening



Dimension Code	Standard Value	Measuring Area
A	992.3mm	Distance between B-pillar and rear door lock pillar installation position
B	930.7mm	Distance between A-pillar and B-pillar lock pillar installation position
C	983.6mm	Front door opening
D	1392.9mm	Front door opening
E	1105.5mm	Rear door opening
F	1297.5mm	Rear door opening

Check Dimension of Body Deck



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Dimension Code	Standard Value	Measuring Area
1	960 ± 1mm	Between A and a
2	913 ± 1mm	Between B and b
3	869 ± 1mm	Between C and c
4	1140.5 ± 1mm	Between C and D
5	1080 ± 1mm	Between D and d
6	996 ± 1mm	Distance between E and e
7	915 ± 1mm	Between F and f