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External projections for all terrain vehicles

全地形车外部凸出物

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External projections for all terrain vehicles

1 Scope

This standard specifies the requirements and test methods for external projections for all terrain vehicles.

This standard applies to all terrain vehicles (hereinafter referred to as "vehicles").

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this standard.

GB/T 24936 Terms for all terrain vehicles

3 Terms and definitions

The terms and definitions defined in GB/T 24936 as well as the following terms and definitions apply to this document.

3.1

External surface

Visible surfaces of vehicle covering pieces, including engine hoods, trunk lids, doors, fenders, roofs, lighting and light signaling devices, visible reinforcements, front fenders, front bumpers, front wheels

Note: Rewrite GB 11566-2009, definition 3.2.

3.2

Radius of curvature

The arc radius of the imaginary part which is closest to a circle.

[GB 11566-2009, definition 3.4]

3.3

[GB 20074-2017, definition 3.4]

3.9

Floor line

The geometric trajectory of the contact points as formed by allowing a cone which has a top angle of 30° (the cone height is determined by itself, the cone top is upward, the cone axis is perpendicular to the horizontal plane) to roll along the external surface of a laden vehicle to continuously contact the lowest position of the external surface of the vehicle.

Note 1: When determining the floor line, it does not consider the exhaust pipe, wheels and functional mechanical components installed under the vehicle body, support points for jacks, suspension devices or connectors used in case of towing or breakdown. Without changing the position, the gap outside the wheel arch may be imagined as a smooth external surface formed after filling.

Note 2: Rewrite GB 11566-2009, definition 3.3.

3.10

Laden vehicle

The vehicle that bears the maximum load allowed by the factory.

Note: Rewrite GB 11566-2009, definition 3.5.

3.11

The dimension of projection

The size of the projection portion of the parts assembled on the vehicle's plate.

[GB 11566-2009, definition 3.7]

3.12

The nominal line of a panel

According to the method of 5.2.2.2, when using a sphere which has a diameter of 100 mm to measure the surface of a certain panel of the vehicle, the connection line between the two sphere centers at the initial and final positions.

[GB 11566-2009, definition 3.8]

a) Requirements for grazing parts:

1) The plate shall meet the following requirements:

- The radius of curvature of each corner of the plate shall not be less than 3 mm;
- The radius of curvature of the edge of the plate shall not be less than 0.5 mm.

2) The stem shall meet the following requirements:

- The diameter of the stem shall not be less than 10 mm;
- The radius of curvature of the end edge of the stem shall not be less than 2 mm.

b) Requirements for collision parts:

1) The plate shall meet the following requirements:

- The radius of curvature of the edges and corners of the plate shall not be less than 2 mm.

2) The stem shall meet the following requirements:

- If the diameter is less than 20 mm, the length of the stem shall not be more than half of its diameter;
- If the diameter is not less than 20 mm, the radius of curvature of the end edge of the stem shall not be less than 2 mm.

4.1.4 Special requirements

4.1.4.1 The radius of curvature of the upper edges of windshields, deflectors and other protective covers shall not be less than 2 mm, or they shall be wrapped with protective materials that meet the requirements of 4.1.2.3. The upper edge refers to the part between the tangent points of two planes at 45° to the horizontal plane, as shown in Figure 2.

of 4.2.1.

When applying a force of 100 N, it shall use a flat-end indenter with a diameter not greater than 50 mm, with the equivalent method. After the trim parts are retracted, detached or bent, the projection height of the remaining part shall not exceed 10 mm. In any case, these projections shall meet the requirements of 4.2.1.2. If the trim parts are installed on a substrate, the substrate is considered as a trim part, not a support surface.

4.2.2.1.2 The protective decorative strips or guards on the external surface of the vehicles are not restricted by 4.2.2.1.1, but shall be reliably fixed on the vehicles.

4.2.2.2 Headlamp

4.2.2.2.1 The headlamps are allowed to be equipped with protruded shading plates and lamp rings, but the projection height relative to the external surface of the headlamp's light distribution mirror shall not exceed 30 mm and the fillet radius shall not be less than 2.5 mm. If the headlamp is installed behind an additional transparent surface, the projection shall be measured from the outermost transparent surface. The projection height is measured according to the method specified in 5.2.2.3.

4.2.2.2.2 Retractable headlamps shall comply with the provisions of 4.2.2.2.1 regardless of whether they are in the working position or the retracted position.

4.2.2.2.3 The provisions of 4.2.2.2.1 do not apply to headlamps as buried in or extended over the vehicle's plate, but the vehicle's plate shall meet the requirements of 4.2.2.9.

4.2.2.3 Grille and gap

4.2.2.3.1 The provisions of 4.2.1.4 do not apply to the case where the gap width between the fixed element or the movable element (including the parts of the air inlet and outlet as well as the radiator cover) is less than 40 mm, meanwhile this gap is a functional requirement. When the gap width is between 25 mm ~ 40 mm, the fillet radius shall not be less than 1 mm; if the gap width is equal to or less than 25 mm, the fillet radius of its outer edge shall not be less than 0.5 mm. The width of the gap between two adjacent components is measured according to the method as specified in 5.2.2.4.

4.2.2.3.2 The junction of the front and side ends of each element forming a grid or gap shall be smooth.

4.2.2.4 Windshield wiper

4.2.2.4.1 The rotating shaft of the windshield wiper shall be equipped with a

the connection cover and nozzle of the headlamp washer. The outward corners of these parts shall be round and smooth, except for parts with a projection height less than 1.5 mm.

4.2.2.6 The handles, hinges and buttons of the doors, trunk lid and hood as well as fuel tank cap and various covers

4.2.2.6.1 The projection height of handle of door or trunk lid shall not exceed 40 mm; it shall not exceed 3 mm in other conditions.

4.2.2.6.2 If the side door's handle is rotating, it shall meet any of the following:

- If the handle rotates parallel to the surface of the door, the free end of the handle shall face backward and bend towards the door panel and be placed in a protective cover or embedded in the groove;
- For a handle that is not parallel to the surface of the door and rotates outward in any direction, in the closed position, the free end of the handle shall be placed backwards or downwards and placed in a protective cover or embedded in the groove.

Handles that do not meet the above conditions but meet the following conditions are still acceptable:

- a) The handle has an independent return mechanism;
- b) If the return mechanism is damaged, the handle shall not protrude from the surface for more than 15 mm;
- c) In the open position, it complies with the provisions of 4.2.1.4;
- d) The surface area of the end of the handle is, when measured at a position no greater than 6.5 mm from the outermost projection, not less than 150 mm².

4.2.2.7 Wheels, wheel nuts, hub cover, wheel trims

4.2.2.7.1 The external surfaces of parts such as wheels, wheel nuts, hub covers and wheel trims are not restricted by 4.2.1.4.

4.2.2.7.2 There shall be no sharp projections on the wheels, wheel nuts, wheel hub covers and wheel trim that project from the outer plane of the wheel; it is not allowed to use butterfly nuts.

4.2.2.7.3 When the vehicle travels straight, the wheel parts (except tires) above the horizontal plane of the wheel's rotation axis shall not protrude from the vertical projection of the external surface of the vehicle on the horizontal plane. If it have to protrude it due to functional requirements (such as wheel trim), the

4.2.2.14 Windows

The windows moving outward from the external surface of the vehicle shall comply with the following regulations in all use positions:

- There shall be no exposed edges facing forward;
- No part of the window shall protrude from the outermost edge of the vehicle.

4.2.2.15 Luggage rack and sled rack

4.2.2.15.1 When the luggage rack and the sled rack are installed on the vehicle, they shall be able to be reliably fixed in at least one direction and can withstand the longitudinal and lateral horizontal forces. The force value shall not be lower than the maximum vertical load capacity specified by the manufacturer. For the test of luggage rack and sled rack installed according to the manufacturer's requirements, the test load cannot be applied to only one point.

4.2.2.15.2 After the luggage rack and sled rack are installed and fixed, when the contact inspection is performed by a sphere which has a diameter of 165 mm, the fillet radius of the contact surface shall not be less than 2.5 mm, unless otherwise it meets the requirements of 4.2.2.3.

4.2.2.15.3 For the connector above the contact surface mentioned in 4.2.2.15.2 (such as a screw and the like can be tightened or loosened without the aid of a tool), its projection height shall not be greater than 40 mm. The projection height is measured by a sphere which has a diameter of 165 mm according to the method described in 5.2.2.

4.2.2.16 Antenna

4.2.2.16.1 When the radio transceiver antenna is installed on the vehicle according to any use position specified by the manufacturer, if the height of the top of the antenna is less than 1.8 m from the ground, it shall be within the area enveloped by a vertical plane of 100 mm within the outermost edge of the vehicle.

4.2.2.16.2 In addition, the top part of the antenna installed on the vehicle shall not protruded beyond the outermost edge of the vehicle.

4.2.2.16.3 The fillet radius of the antenna stem can be less than 2.5 mm, but the top of the antenna shall be fitted with a fixed cap, which has a fillet radius of not less than 2.5 mm.

4.2.2.16.4 When measured according to the method of 5.2.2, the base of the antenna shall not protrude more than 40 mm.

4.2.2.16.5 When the antenna cannot identify the components of the antenna

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