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GB 11555-2009

Replacing GB 11555-1994, GB 11556-1994

Motor vehicles-windshield demisting and defrosting systems - Performance requirements and test methods

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Jointly issued by: General Administration of Quality Supervision, Inspection and Quarantine;

Standardization Administration of the People's Republic of China.

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Foreword

All technical contents of this standard are mandatory.

This standard modifies and adopts EU 78/317/EEC (21/12/1977) 0J NO. L81 (28/03/1978) "Council Directive on the approximation of the laws of the Member States relating to the defrosting and demisting systems of glazed surfaces of motor vehicles" (English version).

This standard replaces GB11555-1994 "Motor vehicle windshield demisting system performance requirements and test methods" and GB11556-1994 "Motor vehicle windshield defrosting system performance requirements and test methods".

This standard was re-drafted according to 78/317/EEC. Appendix A lists out the correlation on the chapter and section numbering between this standard and that in the 78/317/EEC.

Considering to the actual situations in China, when adopting 78/317/EEC directive, this standard has made some modifications.

The technical differences and the reasons between this standard and 78/317/EEC directive are as follows:

— Delete the content relating to certification in 78/317/EEC directive. That is, Chapter 3, 4 of Appendix 1 and Appendix 6. This is because there is formatting difference between the standard system and directive system.

— Delete "2.3 three-dimensional coordinate system", "2.4 basic reference marking", "2.5 seat back angle", "2.6 actual seat back angle" in Appendix 1 of 78/317/EEC directive; the definition of "designed seat back angle"; "determining of H point and actual seat back angle, verification of relative location between point R and H, and the relation verification procedure between designed seat back angle and actual seat back angle" in Appendix 2; "the relation between vehicle basic reference marking and the three-dimensional coordinate marking" in Appendix 3. The reason is that the contents have already been clarified in standards GB 11551-2003 and GB11562-1994. And they are consistent.

For ease of use, the following editorial modifications have been made to 78/317/EEC directive in this standard:

— "This directive" is changed to "this standard";

— "Definition" is changed to "terms and definitions";

— Add informative Appendix.

Compared with GB11555-1994 and GB11556-1994, the main differences in this standard are:

— Add "180° view-field in front of driver" (Chapter 1 in this edition);

— Add terms and definitions of "V point", "R point" (3.8 and 3.9 in this edition);

— "Defrosting device" is changed to "defrosting system" (3.1 in this edition). "Demisting device" is changed to "demisting system" (3.4 in this edition).

— Add “dimension and the features of steam generator” (6.2.2.1 d in this edition);

— Add “Within 5 minutes from the start of the test, it may adopt the programmable ‘fast idle speed’ that is recommended by the manufacturer for cold weather engine start” and “voltage on the wire-terminals of the defrosting system shall not be more than 20% of the system’s rated voltage” (6.1.1.5 and 6.1.1.9 in this edition).

Appendix A of this standard is informative.

This standard was proposed by the National Development and Reform Commission.

This standard shall be administered by the National Automotive Standardization Technical Committee.

Drafting organizations of this standard: Wuhan Auto Parts Research Institute, Dong Feng Automotive Engineering Research Academe, and National Quality Certification Centre.

Main drafters of this standard: Li Zaihua, Yu Boying, and Qu Yanping.

The previous versions replaced by this standard are:

— GB 11555-1994;

— GB 11556-1994.

Motor vehicles - Windshield demisting and defrosting systems - Performance requirements and test methods

1. Scope

This standard specifies motor vehicle windshield demisting and defrosting systems performance requirements and test methods.

This standard is applicable to 180° view-field, in front of M1 vehicle's driver.

2. Normative references

The provisions in following documents become the provisions of this standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this standard, however, parties who reach an agreement based on this standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB 11551-2003 The protection of the occupants in the event of a frontal collision for passenger car

GB 11562-1994 Motor vehicles. Forward visibility for drivers. Requirements and measurement methods

3. Terms and definitions

The following terms and definitions are applicable to this standard.

3.1 Defrosting system

The system that melts the frost or ice on the windshield, so that the vision is resumed.

3.2 Defrosting

Remove the frost or ice on the windshield through defrosting or the operation of the windscreen wiper.

3.3 Defrosted area

The windshield area of which the surface is dry; or the covered frost is completely or partially melted. The covered frost can be cleared by windscreen wiper from the outside. This does not include the area that is covered by dry frost.

3.4 Demisting system

It is used to clear the cold condensed substances from the windshield, so that the vision is resumed.

3.5 Mist

The condensed substance on the windshield's surface.

3.6 Demisting

Through the operation of demisting system to remove the mist covered on glass's surface.

3.7 Demisted area

The area on the windshield where the normal vision is possible, after demisting.

3.8 V point

V point is the point indicating driver's eye position. It is determined by vertical plane of central line of the driver's seating position (if the seat is adjustable, move the seat to the most-back position), R point, and designed seat back angle (see 3.4.1 in GB11562-1994). V point is used to check if the vehicle's vision complies with the requirements. V_1 and V_2 points are usually used to indicate the different positions of V point (see Figure 1).

3.9 R point

"R point" is the "seating reference point". Its definition is as per 3.7 in GB 11551-2003.

4. Determination of A, B and A′ areas

4.1. A area is the area enclosed by the intersecting lines BETWEEN the 4 planes extended from V point (i.e. V_1 and V_2. See 3.5.1 description in GB 11562-1994 3.5.1: V point is determined according to the provision 5.1 in GB 11562-1994) AND the outer surface of windshield's glass (see Figure 1).

4.1.1. The vertical plane that passes through V_1 and V_2; and forms a 13° angle to X axis, at the left-side of X axis.

4.1.2. The plane that passes through V_1; forms a 3° elevation to the X axis; and is parallel to Y axis.

4.1.3. The plane that passes through V_1; forms a 1° depression to the X axis; and is parallel to Y axis.

4.1.4. The vertical plane that passes through V_1 and V_2; and forms a 20° angle to X axis, at the right-side of X axis.

b) Under -3°C±1°C environmental condition, the heat loss at boiling point shall not be more than 75W;

c) The blower shall have a capacity of 4.2m^3/h~6.0m^3/h, under 50Pa static pressure;

d) There are 6 venting holes with diameter = 6.3mm on top of the steam generator;

e) The steam capacity outputted by the steam generator, under -3°C±1°C, is n×(70 g/h±5g/h).

Note: "n" is the number of seats as per manufacturer's specification.

f) The dimension and material of the steam generator is shown in Table 1.

Table 1 The dimension and material of the steam generator

Parts	Dimension	Material
Nozzle	Length: 100mm Inner diameter: 15mm	Brass
Diffusion chamber	Length: 115mm Diameter: 75mm 6 steam venting-holes (diameter = 6.3mm) are evenly set at the bottom of the diffusion chamber (spacing = 25mm)	Brass tube, wall thickness = 0.4mm

6.2.2.2 DC adjustable stabilized power supply.

6.2.2.3 Engine speedometer or other measuring instruments.

6.2.2.4 Anemometer or other measuring instruments.

6.2.2.5 Thermometer or other measuring instruments.

6.2.3 Test procedures

6.2.3.1 Determine the A and B areas of the windshield according to the provisions in Chapter 4.

6.2.3.2 The steam generator shall be placed behind the back of front seats. The air vent shall be at 580mm±80mm above the R point of the driver's seat. If the seat back is adjustable, it shall be adjusted to the specified angle. If there is no enough room behind the seat back, then the steam generator can be placed in front of the seat back, nearest to the location specified above.

6.2.3.3 Drive the vehicle into the test room and then turn off the ignition. Lower the room temperature until the engine coolant, lubricant and vehicle internal temperature stay constant at -3°C±1°C.

6.2.3.4 Heat the steam generator (with at least 1.7L water) to boiling point. After it is stable, place it in the vehicle and shut the doors.

6.2.3.5 After 5 minutes, 1 or 2 testers enter the vehicle. The steam volume outputted from

the generator shall be reduced by 70g/h±5g/h for each tester entering the vehicle.

6.2.3.6 1 minute after the testers enter the vehicle, start the engine as per manufacturer's specification. Operate the demisting system as per 6.2.1.5 and set the temperature controller as per manufacturer's requirements. This moment is deemed as the test starting time.

6.2.3.7 10 minutes after the test is started, record the test conditions. Draw or take photos of the contour of the demisted area. It shall also mark the side which can distinguish the driver's position.

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