7 The lateral protection device and the Rear Underrun Protection Device (RUPD)(or bumper)

7.1 Effective date and Scope:

7.1.1 As for the vehicle category N2, N3 (except tractors) and O2, O3, O4 and including tractors registered, inspected and get license plate after the 2004/01/01, shall comply this regulations.

7.1.2 “The clearance between lateral protection device to the structure of vehicle body and lateral protection device to ground” shall comply with either 7.3.3.1 or 7.3.3.2 of this regulation, “The clearance between the lateral protection device and tires” shall comply with either 7.3.4.1 or 7.3.4.2 of this regulation, “the outer surface of the lateral protection device” shall comply with either 7.3.5.1, 7.3.5.2 or 7.3.5.3 of this regulation, and “the curvature radii of the rear ends of the lateral protection device” shall comply with either 7.3.6.1 or 7.3.6.2 of this regulation.

7.1.2.1 Effective from 2011/7/1, new variants of N2, N3, O2, O3 and O4 vehicles, “The clearance between the lateral protection device and tires”, “the outer surface of the lateral protection device” and “the curvature radii of the rear ends of the lateral protection device” shall comply with paragraph 7.3.4.2, 7.3.5.2 and 7.3.6.2.

7.1.2.2 Effective from 2013/1/1, all variants of N2, N3, O2, O3 and O4 vehicles (except tractors), “The clearance between lateral protection device to the structure of vehicle body and lateral protection device to ground”, “The clearance between the lateral protection device and tires”, “the outer surface of the lateral protection device”, and “the curvature radii of the rear ends of the lateral protection device”, shall comply with paragraph 7.3.3.2, 7.3.4.2, 7.3.5.3 and 7.3.6.2.

7.1.2.3 Effective from 2013/1/1, all variants of tractors, “The clearance between the lateral protection device and tires”, “the outer surface of the lateral protection device”, and “the curvature radii of the rear ends of the lateral protection device”, shall comply with paragraph 7.3.4.2, 7.3.5.2 and 7.3.6.2.

7.2 The lateral protection device and the Rear Underrun Protection Device (RUPD)(or bumper) shall according to suitable types and range of principle are as below：

7.2.1 The same vehicle category symbol.

7.2.2 The same type of vehicle body.

7.2.3 The same axle set type.

7.2.4 The same brand and vehicle type series.

7.2.5 The chassis vehicle have had same axle set type.

7.2.6 The same chassis brand.

7.2.7 Chassis manufacturers declared that the same chassis vehicle type series.

7.3 The dimension, installation and allocation of the lateral protection device:

7.3.1 Shall connect to main beam of chassis or other major structure of vehicle body, firmly fixed, to prevent the passenger, bicycle and motorcycle from falling under the sides of vehicle.

7.3.2 Shall be installed at the outer side of centerline of the outer rear tire contacted to the ground, parallel to the direction of vehicle proceeding therewith. The outer surface (includes the protrusions) shall not protrude out the vehicle body; the outer surface shall be smooth.

7.3.3 The requirement for the clearance between lateral protection device to the structure of vehicle body and lateral protection device to ground:

7.3.3.1 Any point on the lowest edge shall keep a clearance of at most 45 cm with the ground. Any point on the highest edge to the ground shall be no less than 65 cm. And the net distance space of any point between the highest edge and its corresponding upper point under the lower edge of the vehicle structure (for the container vehicle it's the surface of container contacting the horizontal beam) shall be within 55 cm. If the distance specified above is larger than 55 cm, or the point on the highest edge has no corresponding vehicle body point therein, then it shall install a plane structure, at least one piece of railing, or a combination of plane and railing between it highest edge and vehicle body structure. If it's railing type, then the clearance between rails shall be lower than 30 cm, the sectional height of the rail or plane structure shall be no less than 2.5 cm. Yet, if its upper part connects to the main body structure of the vehicle, which can effectively prevent person from falling into the space under the chassis, then it's not restricted under this requirement.

7.3.3.2 For the vehicle category N2, N3 with over 8.5 MT in gross vehicle weight, and semi-trailer with maximum length exceeding 12 m, any point on the lowest edge of the lateral protection device shall keep a clearance of at most 40 cm with the ground; For other vehicles in category N2, N3 and O, the lower edge of the lateral protection device shall keep a clearance of at most 30~40 cm with the ground. Any point on the highest edge to the ground shall be no less than 65 cm. And the net distance space of any point between the highest edge of lateral protection device and its corresponding upper point under the lower edge of the vehicle structure (for the container vehicle it's the surface of container contacting the horizontal beam) shall be within 55 cm. If the lateral protection device the distance specified above is larger than 55 cm, or the point on the highest edge has no corresponding vehicle body point therein, then it shall install a plane structure, at least one piece of railing, or a combination of plane and railing between

it highest edge and vehicle body structure. If it's of plane or railing type, then the clearance between plane or rails shall be lower than 20 cm, the sectional height of the rail or plane structure shall be no less than 10 cm. Yet, if its upper part connects to the main body structure of the vehicle, which can effectively prevent person from falling into the space under the chassis, then it's not restricted under this requirement.

7.3.4 The requirement for the clearance between the lateral protection device and tires:

7.3.4.1 The distance between the front end of plane portion (not including the corner) and the rearmost portion of the front tire shall not exceed 40 cm. However, the front end of the lateral protection device of the semi-trailer (including the corner) shall extend to the same distance of the rear side of auxiliary stands. The distance of the transverse vertical planes between the rear end of plan portion (excludes the corner) and the front most portion of rear wheel tangent to it shall not exceed 40 cm.

7.3.4.2 The distance between the front end of plane portion (including the corner) and the rearmost portion of the front tire shall not exceed 30 cm, if there is any device in between which may interfere with the lateral protection device then it may follow the requirement of 7.3.7 and 7.3.8. However, the front end of the lateral protection device of the semi-trailer (including the corner) shall extend to the same distance of the rear side of auxiliary stands. The distance between the rear end of plan portion (including the corner) and the front most portion of rear wheel tangent to it shall not exceed 30 cm.

7.3.5 The requirement for outer surface of the lateral protection device:

7.3.5.1 Can be built by continuous horizontal plane, more than one piece of rail and the combination of plane and rail. The form shall mainly be continuous type. Yet the transverse clearance, if any, between the connecting portions, shall not exceed 2.5 cm. The vertical distance between two rail pieces shall not exceed 20 cm, and the sectional height of the rail or plane structure shall be no less than 2.5 cm.

7.3.5.2 When the vehicle at unladen condition, for the vertical component in the outer surface of the lateral protection device between 90 cm to 110 cm from the ground, its outer surface shall be constructed by continuous transverse plane. When the highest point of the vertical components is less than 110 cm from the ground, its continuous transverse plane shall at least extend to the highest point of the vertical components. In case there are special equipment（such as toolbox, lighting devices, batteries or hydraulic auxiliary stands ）or hook pin, which may interfere with the lateral protection device, it may follow the requirement of 7.3.7 and 7.3.8, and its continuous transverse plane shall at least extend to the point where is 3 cm below the lowermost point of the equipment or hook pin, the continuous transverse plane shall be of equal height from the ground in principle. Other parts of the

lateral protection device can be constructed by continuous horizontal plane, more than one pieces of rails or the combination of plane and rails. The form shall mainly be continuous type. Yet the transverse clearance, if any, between the connecting portions, shall not exceed 2.5 cm. The vertical distance between two rail pieces shall not exceed 20 cm, and the sectional height of the rail or plane structure shall be no less than 2.5 cm.

7.3.5.3 When the vehicle at unladen condition, for the vehicle categories O2, O3 and O4, the vertical component in the outer surface of the lateral protection device between 60 cm to 110 cm from the ground, its outer surface shall be constructed by continuous transverse plane. For the vehicle categories N2, N3, the vertical component in the outer surface of the lateral protection device between 75 cm to 110 cm from the ground, its outer surface shall be constructed by continuous transverse plane. When the highest point of the vertical components is less than 110 cm from the ground, its continuous transverse plane shall at least extend to the highest point of the vertical components. In case there are special equipment（such as toolbox, lighting devices, batteries or hydraulic auxiliary stands ）or hook pin, which may interfere with the lateral protection device, it may follow the requirement of 7.3.7 and 7.3.8, and its continuous transverse plane shall at least extend to the point where is 3 cm below the lowermost point of the equipment or hook pin, the continuous transverse plane shall be of equal height from the ground in principle. Other parts of the lateral protection device can be constructed by continuous horizontal plane, more than one pieces of rails or the combination of planes and rails. The form shall mainly be continuous type. Yet the transverse clearance, if any, between the connecting portions, shall not exceed 2.5 cm. The vertical distance between two plane or two rail pieces shall not exceed 20 cm, and the sectional height of the rail or plane structure shall be no less than 10 cm.

7.3.6 The requirement for the curvature radii of the rear ends of the lateral protection device:

7.3.6.1 Both the curvature radii of front & rear ends shall be no less than 0.25 cm.

7.3.6.2 Both the curvature radii of front & rear ends shall be between 2.5 cm to 10 cm, and it shall be connected and fixed by vertical jointed components. Both the front & rear ends shall extend at least to the centric line of the outside tires, if there is some interference occurred when operating specific equipment and it can not be extended to above-mentioned position, then it may only be extended to the position of the above equipment.

7.3.7 if the vehicle body structure or its attachment is a permanent fixed type, it can be regarded as part of the lateral protection device, but its installation has to comply with the requirement of the lateral protection device specified therein. The clearance between these two shall not exceed 2.5 cm. Yet, the attachment of brake, air or hydraulic pipeline cannot be regarded as part of the lateral protection

device.

7.3.8 If there is some interference occurred when the vehicle is operating specific equipment (such as toolbox, batteries, hook pin or hydraulic auxiliary stands), then the portion of vehicle that interference will occur can be free from installing the lateral protection device.

7.4 The dimension, installation and allocation of the RUPD (or bumper):

7.4.1 The RUPD shall connect to main beam of chassis or other major structure of vehicle body, firmly fixed, to prevent the other vehicles from rushing into the space under the chassis at collision.

7.4.2 When vehicle of curb weight status, the vertical distance between the lower edge of RUPD and ground shall not exceed 70 cm.

7.4.3 Shall be symmetrically installed from the centerline of vehicle width. The RUPD and the rear overhang lateral protection device shall be continuously connected without interruption. Yet, if the distance between rear tire tip and rear edge of vehicle body doesn't exceed 60 cm, then it can discontinue from the rear overhang lateral protection device. The entire width of the RUPD shall be more than 60% of the vehicle width.

7.4.4 The installing location shall be within 60 cm from the rearmost of vehicle body, yet if there is another attaching device with a height lower than 150 cm (curb weight condition), then the distance between the RUPD and the attaching device shall be within 60 cm.

7.4.5 From 2003/1/1, regarding the plane portion of rear overhang lateral protection device (excludes the corner), the distance between the front edge and the transverse vertical plane tangent to the rearmost portion of rear wheel-tire shall not exceed 40 cm.

7.4.6 When operating vehicle's special equipment, the vehicle portion that might get interference with the RUPD can be free from installing the RUPD.

7.4.7 It shall not cover the vehicle license plates, rear light or rear light-reflection mark.

7.5 For the heavy truck and trailer over 8 MT in gross vehicle weight, which is registered and license plate granted before 2001/3/5, and vehicles of category symbol N2, N3, O2, O3 and O4 with gross vehicle weight between 3.5 MT and 8 MT, registered and license plate granted before 2001/7/1, if the rear overhang is under 230 cm, then the vehicle can be free from installing of the rear overhang lateral protection device.