



Transport Canada  
Safety and Security

Transports Canada  
Sécurité et sûreté

Road Safety

Sécurité routière

## **Standards and Regulations Division**

# **TEST METHOD 214**

## **Side Door Strength**

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Motor Vehicle Standards and Research Branch  
Road Safety and Motor Vehicle Regulation Directorate  
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**TABLE OF CONTENTS**

**1. INTRODUCTION.....1**

**2. DEFINITIONS.....1**

**3. TEST PROCEDURE.....2**

**Figure 1: Position of Static Loading Device ..... 5**

## 1. Introduction

*Test Method 214 — Side Door Strength* (November 14, 1996) is to be used for demonstrating compliance with the requirements of section 214 of Schedule IV to the *Motor Vehicle Safety Regulations*.

(Original signed by)

Director, Motor Vehicle Standards and Research  
for the Minister of Transport  
Ottawa, Ontario

## 2. Definitions

“**Contoured**” means, with respect to a door, that the lower portion of its front or rear edge is curved upward, typically to conform to a wheel well. (*profilée*)

“**Double side doors**” means a pair of doors with the lock-and-latch mechanism located where the door lips meet or overlap. (*porte latérale à double battant*)

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### 3. Test Procedure

The following procedure applies in determining compliance with section 214 of Schedule IV to the *Motor Vehicle Safety Regulations*:

- (a) either remove or install the seats. If the seats are installed, they may be adjusted to any position;
- (b) place the side windows in their uppermost position and lock all the doors. Place the sill of the side of the vehicle, opposite to the side being tested, against a rigid, unyielding vertical surface. Fix the vehicle rigidly in position by means of tie-down attachments located at, or forward of, the front-wheel centerline and at, or rearward of, the rear-wheel centerline;
- (c) prepare a loading device consisting of a rigid steel cylinder or semicylinder 305 mm in diameter with an edge radius of 13 mm. The length of the loading device shall be such that:
  - (i) for doors with windows, the top surface of the loading device is at least 13 mm above the bottom edge of the door window opening, but not a length that will cause contact with any structure above the bottom edge of the door window opening during the test,
  - (ii) for doors without windows, the top surface of the loading device is at the same height above the ground as when the loading device is positioned in accordance with subparagraph 3(c)(i) of this test method for purposes of testing a front door with windows on the same vehicle;
- (d) locate the loading device as shown in Figure 1 (side view) such that its longitudinal axis is vertical and, except as provided in subparagraphs 3(d)(i) and (ii), its axis is located laterally opposite the midpoint of a horizontal line drawn across the outer surface of the door 127 mm above the lowest point of the door, exclusive of any decorative or protective moulding that is not permanently affixed to the panel of the door;
  - (i) for contoured doors on trucks, buses and multipurpose passenger vehicles with a GVWR of 4536 kg or less, if the length of the horizontal line drawn across the outer surface of the door 127 mm above the lowest point of the

door is not equal to or greater than 559 mm, the horizontal line is moved vertically up the side of the door to the location at which the horizontal line is 559 mm long and the longitudinal axis of the loading device is then located laterally opposite the midpoint of that horizontal line,

- (ii) for double side doors on trucks, buses and multipurpose passenger vehicles with a GVWR of 4536 kg or less, the longitudinal axis of the loading device is located laterally opposite the midpoint of a horizontal line drawn across the outer surface of the double door's span, 127 mm above the lowest point on the doors, exclusive of any decorative or protective moulding that is not permanently affixed to the panel of the door;
- (e) except as provided in subparagraphs 3(e)(i) and (ii), the bottom surface of the loading device is in the same horizontal plane as the horizontal line drawn 127 mm above the lowest point of the door, exclusive of any decorative or protective moulding that is not permanently affixed to the panel of the door:
- (i) for contoured doors on trucks, buses and multipurpose passenger vehicles with a GVWR of 4536 kg or less, the bottom surface of the loading device is in the lowest horizontal plane such that every point on the lateral projection of the bottom surface of the device on the door is at least 127 mm horizontally and vertically from any edge of the panel of the door, exclusive of any decoration or protective moulding that is not permanently affixed to the panel,
  - (ii) for double side doors, the bottom surface of the loading device is in the same horizontal plane as a horizontal line drawn across the outer surface of the double door's span 127 mm above the lowest point of the doors, exclusive of any decoration or protective moulding that is not permanently affixed to the panel of the door;
- (f) using the loading device, apply a load to the outer surface of the door in an inboard direction normal to a vertical plane along the vehicle's longitudinal centerline. Apply the load continuously such that the rate of travel of the loading device does not exceed 13 mm/sec until the loading device travels

457 mm. Guide the loading device to prevent it from being rotated or displaced from its direction of travel. The test must be completed within 120 seconds;

- (g) record the applied load versus the displacement of the loading device, either continuously or in increments of not more than 25 mm or 890 N, for the entire crush distance of 457 mm; and
- (h) determine the initial crush resistance, intermediate crush resistance and the peak crush resistance as follows:
  - (i) from the results obtained in paragraph 3(g), plot a curve of the load versus displacement and obtain the integral of the applied load with respect to the crush distances specified in subparagraphs 3h(ii) and (iii),
  - (ii) calculate the initial crush resistance by dividing the integral of the applied load, over the initial 152 mm of crush, by 152 mm,
  - (iii) calculate the intermediate crush resistance by dividing the integral of the applied load, over the initial 305 mm of crush, by 305 mm,
  - (iv) the peak crush resistance is the greatest force recorded over the entire 457 mm distance of crush.

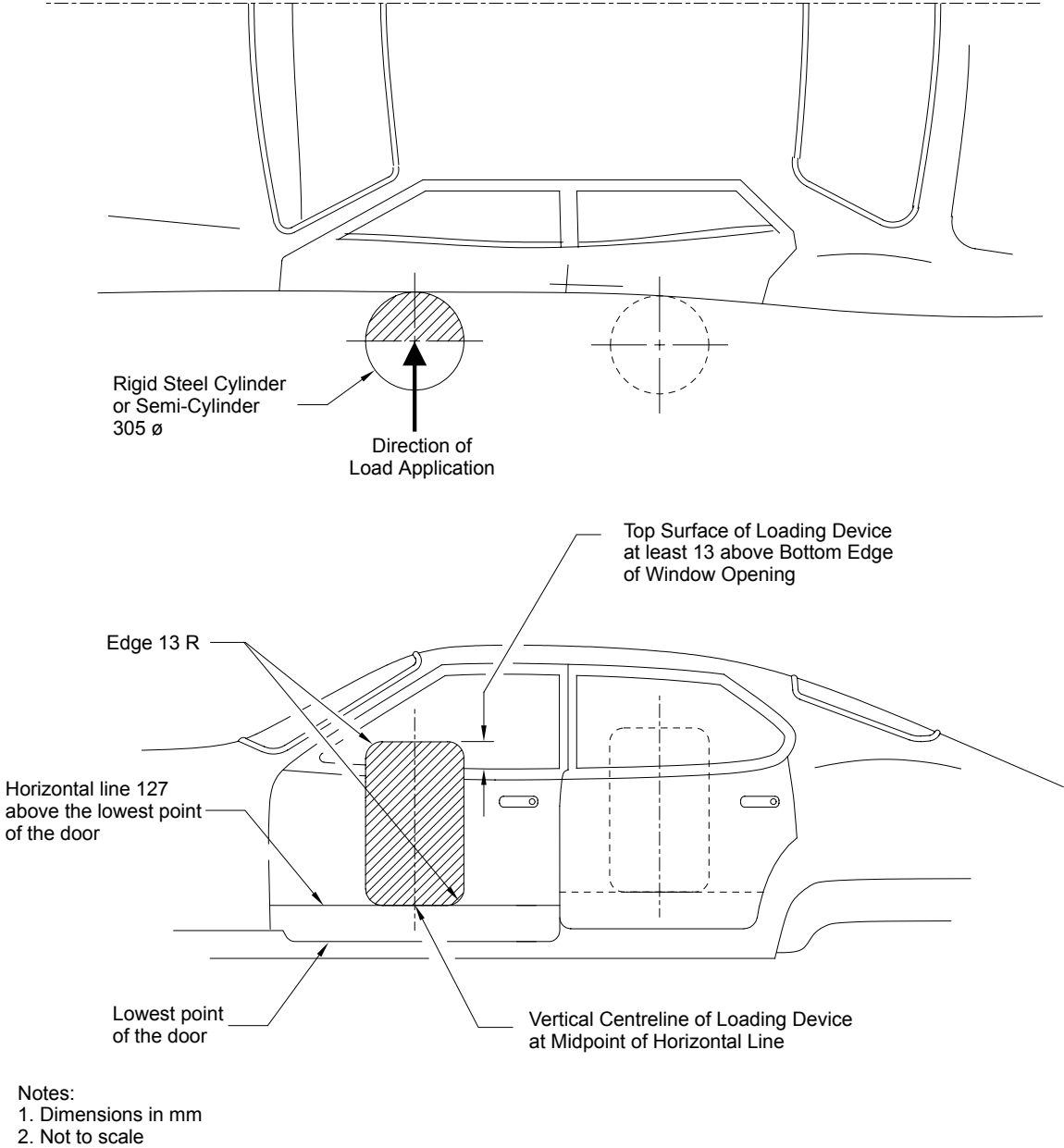


Figure 1 – Position of Static Loading Device