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DOOR LOCKS AND DOOR RETENTION COMPONENTS

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(Ce document est aussi disponible en français.)

Introduction

This Technical Standards Document reproduces the content of Federal Motor Vehicle Safety Standard No. 206, “Door Locks and Door Retention Components”, issued by the National Highway Traffic Safety Administration of the United States Department of Transportation. The general requirements governing Technical Standards Documents (TSD) are set out in section 12 of the *Motor Vehicle Safety Act*, which allows for the use of a TSD to incorporate enactments by a foreign government. Because the requirements of the Regulations may alter or override some provisions or specify additional requirements, this Document should be read in conjunction with the *Motor Vehicle Safety Act* and section 206 of the *Motor Vehicle Safety Regulations*. As a guide, the subsection of the Regulations that alters or limits a TSD provision is indicated in the margin by the number within parentheses. Amendments to this TSD will be made from time to time to incorporate revisions made to the reference document, and a Notice of Revision announcing an amendment will be published in the *Canada Gazette* Part I. The revised TSD will come into force six months after publication of the Notice.

Certain non-technical changes have been made to the U.S. standard by the Department of Transport. These include the deletion of items that do not apply under the *Motor Vehicle Safety Act*, minor changes of an editorial nature, and the correction of a conversion error in S5.5. Additions have been underlined, and provisions that do not apply have been ~~stroked-through~~. One section has been deleted completely and marked “[CONTENT DELETED]”.

Official Version of Technical Standards Documents

Technical Standards Documents may be consulted electronically in both HTML and Portable Document Format (PDF) on the Department of Transport’s Web site at www.tc.gc.ca/RoadSafety/mvstm_tsd/index_e.htm. The PDF version is a replica of the TSD as published by the Department and is to be used for the purposes of legal interpretation and application. The HTML version is provided for information purposes only.

(Original signed by)

Director, Motor Vehicle Standards and Research
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Ottawa, Ontario

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DOOR LOCKS AND DOOR RETENTION COMPONENTS

The text of this document is based on the U.S. *Code of Federal Regulations*, Title 49, part 571, Federal Motor Vehicle Safety Standard No. 206, Door Locks and Door Retention Components, and subsequent amendments, revised as of October 1, 1992, up to and including the Final Rule, Docket 94-70, Notice 4, published in the *Federal Register* on July 31, 1996 (Vol. 61, No. 148, p. 39907).

S1. Purpose and Scope

This Technical Standards Document (TSD) standard specifies requirements for door locks and door retention components, including latches, hinges, and other supporting means, to minimize the likelihood of occupants being thrown from a vehicle as a result of impact.

(1) S2. Application

[CONTENT DELETED] For applicability, also see Schedule III of the *Motor Vehicle Safety Regulations*.

S3. Definitions

Auxiliary door latch means a latch or latches, other than the primary latch or latches, fitted to a back door or door system that is equipped with more than one latch. (*Gâche auxiliaire*)

Back door means a door or door system on the back end of a motor vehicle through which passengers can enter or depart the vehicle, or cargo can be loaded or unloaded; but does not include:

(a) a trunk lid; or

(b) a door or window that is composed entirely of glazing material and whose latches and/or hinges are attached directly to the glazing material. (*Porte arrière*)

Cargo-type door means a door designed primarily to accommodate cargo loading including, but not limited to, a two-part door that latches to itself. (*Porte de chargement*)

Fork-bolt means the part of the door latch that engages the striker when in a latched position. (*Gorge*)

Fork-bolt opening means the direction opposite to that in which the striker enters to engage the fork-bolt. (*Ouverture de la gorge*)

Primary door latch means, with respect to a back door or back door system, the latch or latches equipped with both the fully latched position and the secondary latched position. (*Gâche primaire*)

Side front door means a door that, in a side view, has 50 percent or more of its opening area forward of the rearmost point on the driver's seatback, when the driver's seat is adjusted to its most vertical and rearward position. (*Porte latérale avant*)

Side rear door means a door that, in a side view, has more than 50 percent of its opening area to the rear of the rearmost point on the driver's seatback, when the driver's seat is adjusted to its most vertical and rearward position. (*Porte latérale arrière*)

Trunk lid means a movable body panel that provides access from outside the vehicle to a space wholly partitioned from the occupant compartment by a permanently attached partition or a fixed or fold-down seat back. (*Couvercle du coffre*)

S4. Requirements

(a) *Components on side doors.* Components on any side door that leads directly into a compartment that contains one or more seating accommodations shall conform to this standard.

(b) *Components on back doors.* Components on any back door of a passenger car or multipurpose passenger vehicle with a gross vehicle weight rating (GVWR) of 4 536 kilograms (10,000 pounds) or less that leads directly into a compartment that contains one or more seating accommodations shall conform to this standard, subject to the following compliance schedule:

- (2) (1)(i) For those affected passenger cars and multipurpose passenger vehicles manufactured on or after September 1, 1997, and before September 1, 1998, the amount of such vehicles complying with this standard shall be not less than 60 percent of the combined total production of passenger cars and multipurpose passenger vehicles, based on:
- (A) The manufacturer's average annual production of such vehicles manufactured on or after September 1, 1996, and before September 1, 1998; or
 - (B) The manufacturer's production of such vehicles on or after September 1, 1997, and before September 1, 1998.
- (ii) For calculating average annual production of affected passenger cars and multipurpose passenger vehicles for each manufacturer and the number of such vehicles manufactured by each manufacturer, a vehicle produced by more than one manufacturer shall be attributed to a single manufacturer as follows:
- (A) A vehicle that is imported shall be attributed to the importer;
 - (B) A vehicle manufactured ~~in the United States~~ by more than one manufacturer, one of which also markets the vehicle, shall be attributed to the manufacturer that markets the vehicle;

(C) A vehicle produced by more than one manufacturer shall be attributed to any one of the vehicle's manufacturers specified by an express written contract between the manufacturer so specified and the manufacturer to which the vehicle would otherwise be attributed under paragraph (b)(1)(ii) (A) or (B) of this section.

(2) Components on the back doors of affected passenger cars and multipurpose passenger vehicles manufactured on and after September 1, 1998, shall conform to all applicable requirements of this standard.

(c) Components on folding doors, roll-up doors, doors that are designed to be easily attached to or detached from motor vehicles manufactured for operation without doors, and doors that are equipped with wheelchair lifts and that are linked to an alarm system consisting of either a flashing visible signal located in the driver's compartment or an alarm audible to the driver that is activated when the door is open, need not conform to this standard.

(d) A particular latch or hinge assembly utilized as a test specimen need not meet further requirements after having been subjected to and having met any one of the requirements of S4 or S5.1 through S5.4.

S4.1 Hinged Side Doors, Except Cargo-Type Doors

S4.1.1 Door Latches. Each door latch and striker assembly shall be provided with two positions consisting of:

- (a) A fully latched position; and
- (b) A secondary latched position.

S4.1.1.1 Longitudinal Load. The door latch and striker assembly, when in the fully latched position, shall not separate when a longitudinal load of 11 000 Newtons (2500 pounds) is applied. When in the secondary latched position, the door latch and striker assembly shall not separate when a longitudinal load of 4 450 Newtons (1000 pounds) is applied.

S4.1.1.2 Transverse Load. The door latch and striker assembly, when in the fully latched position, shall not separate when a transverse load of 8 900 Newtons (2000 pounds) is applied. When in the secondary latched position, the door latch and striker assembly shall not separate when a transverse load of 4 450 Newtons (1000 pounds) is applied.

S4.1.1.3 Inertia Load. The door latch shall not disengage from the fully latched position when a longitudinal or transverse inertia load of 30 g is applied to the door latch system (including the latch and its actuating mechanism with the locking mechanism disengaged).

S4.1.2 Door Hinges. Each door hinge system shall support the door and shall not separate when a longitudinal load of 11 000 Newtons (2500 pounds) is applied. Similarly, each door hinge system shall not separate when a transverse load of 8 900 Newtons (2000 pounds) is applied.

S4.1.3 Door Locks. Each door shall be equipped with a locking mechanism with an operating means in the interior of the vehicle.

S4.1.3.1 Side Front Door Locks. When the locking mechanism is engaged, the outside door handle or other outside latch release control shall be inoperative.

S4.1.3.2 Side Rear Door Locks. In passenger cars and multipurpose passenger vehicles, when the locking mechanism is engaged, both the outside and inside door handles or other latch release controls shall be inoperative.

S4.2 Hinged Cargo-Type Side Doors

S4.2.1 Door Latches

S4.2.1.1 Longitudinal Load. Each latch system, when in the latched position, shall not separate when a longitudinal load of 11 000 Newtons (2500 pounds) is applied.

S4.2.1.2 Transverse Load. Each latch system, when in the latched position, shall not separate when a transverse load of 8 900 Newtons (2000 pounds) is applied. When more than one latch system is used on a single door, the load requirement may be divided among the total number of latch systems.

S4.2.2 Door Hinges. Each door hinge system shall support the door and shall not separate when a longitudinal load of 11 000 Newtons (2500 pounds) is applied, and when a transverse load of 8 900 Newtons (2000 pounds) is applied.

S4.3 Sliding Side Doors

The track and slide combination or other supporting means for each sliding door shall not separate when a total transverse load of 17 800 Newtons (4000 pounds) is applied, with the door in the closed position.

S4.4 Hinged Back Doors

S4.4.1 Door Latches. Each back door system shall be equipped with at least one primary latch and striker assembly.

S4.4.1.1 Load Test One. The primary door latch and striker assembly, when in the fully latched position, shall not separate when a load of 11 000 Newtons (2500 pounds) is applied in the direction perpendicular to the face of the latch (corresponding to the longitudinal load test for side door latches) such that the latch and the striker anchorage are not compressed against each other. When in the secondary latched position, the primary latch and striker assembly shall not separate when a load of 4 450 Newtons (1000 pounds) is applied in the same direction.

S4.4.1.2 Load Test Two. The primary door latch and striker assembly, when in the fully latched position, shall not separate when a load of 8 900 Newtons (2000 pounds) is applied in the direction of the fork-bolt opening and parallel to the face of the latch (corresponding to the transverse load test). Figure 1 depicts the loading direction for this test. When in the secondary latched position, the primary latch and striker assembly shall not separate when a load of 4 450 Newtons (1000 pounds) is applied in the same direction.

S4.4.1.3 Load Test Three. The primary door latch and striker assembly on back doors equipped with a latch and striker assembly at the bottom of the door and that open upward shall not disengage from the fully latched position when a load of 8 900 Newtons

(2000 pounds) is applied in a direction orthogonal to the directions specified in S4.4.1.1 and S4.4.1.2 above.

S4.4.1.4 Inertia Load. The primary door latch shall not disengage from the fully latched position when an inertia load of 30 g is applied to the door latch system, including the latch and its activation mechanism with the locking mechanism disengaged, in the directions specified in S4.4.1.1, S4.4.1.2, and S4.4.1.3.

S4.4.1.5 Auxiliary Door Latches. Each auxiliary back door latch and striker assembly shall be provided with a fully latched position and shall comply with the requirements specified in S4.4.1.1, S4.4.1.2, and S4.4.1.4.

S4.4.2 Door Locks. Each back door system equipped with interior door handles or that leads directly into a compartment that contains one or more seating accommodations shall be equipped with a locking mechanism with operating means in both the interior and exterior of the vehicle. When the locking mechanism is engaged, both the inside and outside door handles or other latch release controls shall be inoperative.

S4.4.3 Door Hinges

S4.4.3.1 Load Test One. Each back door hinge system shall support the door and shall not separate when a load of 11 000 Newtons (2500 pounds) is applied perpendicular to the hinge face plate (longitudinal load test) such that the hinge plates are not compressed against each other.

S4.4.3.2 Load Test Two. Each back door hinge system shall not separate when a load of 8 900 Newtons (2000 pounds) is applied perpendicular to the axis of the hinge pin and parallel to the hinge face plate (transverse load test) such that the hinge plates are not compressed against each other.

S4.4.3.3 Load Test Three. Each hinge system on back doors that open upward shall not separate when a load of 8 900 Newtons (2000 pounds) is applied in the direction of the axis of the hinge pin.

S4.5 Sliding Back Doors

The track and slide combination or other supporting means for each sliding door shall not separate when a total longitudinal load of 17 800 Newtons (4000 pounds) is applied, with the door in the closed position.

S5. Demonstration Procedures

S5.1 Hinged Side Doors, Except Cargo-Type Doors

S5.1.1 Door Latches

S5.1.1.1 Longitudinal and Transverse Loads. Compliance with paragraphs S4.1.1.1 and S4.1.1.2 shall be demonstrated in accordance with paragraph 5 of Society of Automotive Engineers Recommended Practice J839, *Passenger Car Side Door Latch Systems*, June 1991.

- (3) **S5.1.1.2 Inertia Load.** Compliance with S4.1.1.3 shall be demonstrated by approved tests or in accordance with paragraph 6 of Society of Automotive Engineers Recommended Practice J839, *Passenger Car Side Door Latch Systems*, June 1991.

S5.1.2 Door Hinges. Compliance with S4.1.2 shall be demonstrated in accordance with paragraph 4 or 5, as appropriate, of Society of Automotive Engineers Recommended Practice J934, *Vehicle Passenger Door Hinge Systems*, July 1982. For piano-type hinges, the hinge spacing requirements of SAE J934 shall not be applicable and arrangement of the test fixture shall be altered, as required, so that the test load is applied to the complete hinge.

S5.2 Hinged Cargo-Type Side Doors

S5.2.1 Door Latches. Compliance with S4.2.1 shall be demonstrated in accordance with paragraphs 5.1 and 5.3, SAE Recommended Practice J839, *Passenger Car Side Door Latch Systems*, June 1991. An equivalent static test fixture may be substituted for that shown in Figure 2 of SAE J839, if required.

S5.2.2 Door Hinges. Compliance with S4.2.2 shall be demonstrated in accordance with paragraph 4 or 5, as appropriate, of SAE Recommended Practice J934, *Vehicle Passenger Door Hinge Systems*, July 1982. For piano-type hinges, the hinge spacing requirement of SAE J934 shall not be applicable and arrangement of the test fixture shall be altered, as required, so that the test load is applied to the complete hinge.

S5.3 Sliding Side Doors

Compliance with S4.3 shall be demonstrated by applying an outward transverse load of 8 900 Newtons (2000 pounds) to the load-bearing members at the opposite edges of the door [17 800 Newtons (4000 pounds) total]. The demonstration may be performed either in the vehicle or with the door retention components in a bench test fixture.

S5.4 Hinged Back Doors

S5.4.1 Door Latches

S5.4.1.1 Load Tests One, Two, and Three. Compliance with S4.4.1.1, S4.4.1.2, and S4.4.1.3 shall be demonstrated in the same manner as specified in S5.1.1.1, except that the loads shall be in the directions specified in S4.4.1.1, S4.4.1.2, and S4.4.1.3. The same test device may be used for Load Tests Two and Three.

S5.4.1.2 Inertia Load. Compliance with S4.4.1.4 shall be demonstrated in the same manner as specified in S5.1.1.2.

S5.4.2 Door Hinges. Compliance with S4.4.3.1, S4.4.3.2, and S4.4.3.3 shall be demonstrated in the same manner as specified in S5.1.2, except that the loads shall be in the directions specified in S4.4.3.1, S4.4.3.2, and S4.4.3.3. The same test device may be used for Load Tests Two and Three.

S5.5 Sliding Back Doors

Compliance with S4.5 shall be demonstrated by applying an outward longitudinal load of 8 900 Newtons (2000 pounds) to the load-bearing members at the opposite edges of the

door [17 800 17 000 Newtons (4000 pounds) total]. The demonstration may be performed either in the vehicle or with the door retention components in a bench test fixture.

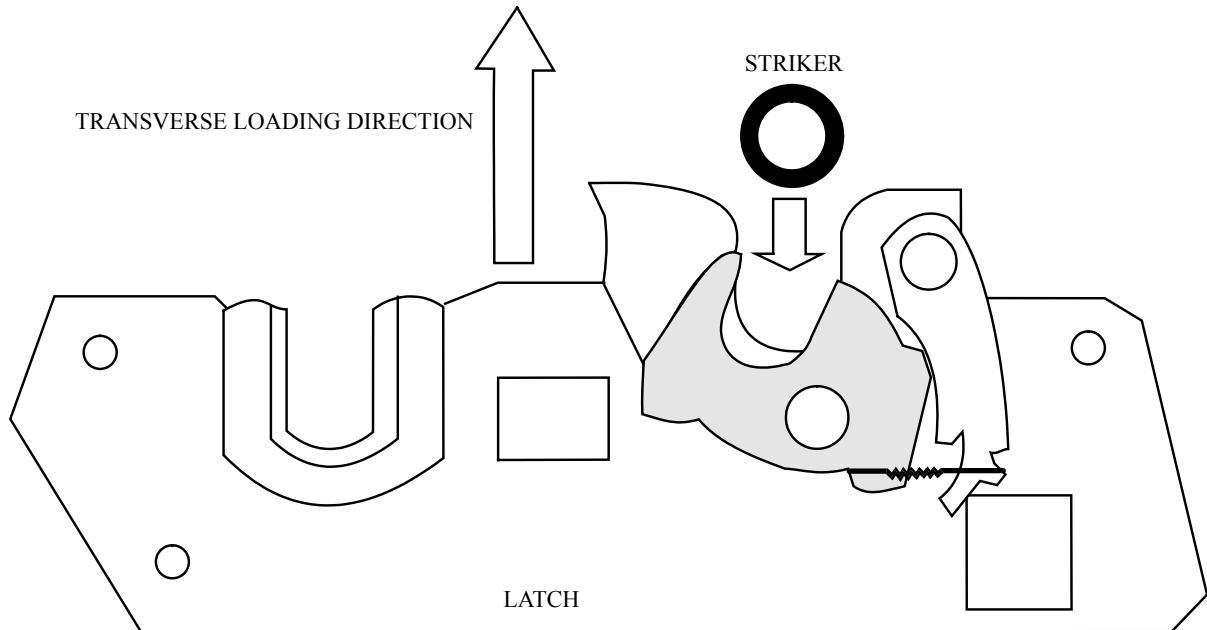


Figure 1 — Top View of a Typical Back Door Latch