

SURFACE VEHICLE RECOMMENDED PRACTICE

J972

MAR2015

Issued 1966-11
Stabilized 2015-03

Superseding J972 OCT2009

Moving Rigid Barrier Collision Tests

RATIONALE

This procedure is superceded in the industry by multiple test methods which represent more closely the impact conditions for current vehicles on the road. The document should be Stabilized and retained for its historical reference only.

FOREWORD

This SAE Recommended Practice is intended as a guide toward standard practice and is subject to change to keep pace with experience and technical advances such as video in place of movie film.

STABILIZED NOTICE

This document has been declared "Stabilized" by the SAE Impact and Rollover Test Procedures Standards Committee and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

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1. SCOPE

Collision tests are conducted on automotive vehicles to obtain information of value in evaluation of structural integrity and in reducing the risk of occupant injuries. The deformation resulting from a moving rigid barrier impact is more severe at a given speed than that produced by using an actual vehicle, but is more readily reproducible than that occurring during vehicle to vehicle impacts. The purpose of this SAE Recommended Practice is to establish sufficient standardization of such moving barriers and moving barrier collision methods so that results of tests conducted at different facilities may be compared.

2. REFERENCES

2.1 Applicable Publications

The following publications form a part of the specification to the extent specified herein. Unless otherwise indicated the latest revision of SAE publications shall apply.

2.1.1 SAE Publication

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

SAE J211-1 Instrumentation for Impact Test—Part 1—Electronic Instrumentation

SAE J211-2 Instrumentation for Impact Test—Part 2: Photographic Instrumentation

2.1.2 FMVSS Publication

Available from the Document Automation and Production Service (DAPS), Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Tel: 215-697-6257, <http://assist.daps.dla.mil/quicksearch/>.

FMVSS 301 Fuel System Integrity (49 CFR Part 571.301)

3. OBJECTIVES

The primary objective of this document is to define test procedures for impacts which will result in a simulation of forces and deformations experienced during a vehicle crash. Standardized procedures allow evaluation of vehicle structural loads and deflections, occupant loads and dynamics, photographic, video, and post-collision observations of pertinent areas or events which are useful in establishing design criteria.

4. CRASH TEST FACILITY

4.1 Test Site, General

The test site shall be of sufficient area to provide accommodations for the test vehicle, various photographic equipment, a protected observer area, and provisions for accelerating the moving barrier to the desired velocity.

4.1.1 The immediate crash site shall be level.

4.1.2 The approach road and the surface at the immediate crash site shall be paved or concrete.

4.1.3 Allowances for proper positioning of photographic equipment should be made.

4.1.4 Allowances should be made for post impact motion of both the test vehicle and the moving barrier.

4.1.5 Document guide rail and/or steering inputs and location and direction of application.

4.2 Approach

The type of approach required depends upon the technique employed to obtain the desired impact velocity of the moving barrier. A practical approach is level, straight, and of sufficient length to permit the moving barrier to be towed along a rail guidance system with the impacts occurring after the moving barrier is released from the tow force and released from guidance at the end of the rail.

4.3 Barrier

Two rigid impact faces are used: the flat face described in 4.3.2 for rear and side impact tests and the contoured face described in 4.3.3, generally used for school bus testing. These two faces are attachable to the front end of a common carriage as shown in Figure 1.