



SURFACE VEHICLE RECOMMENDED PRACTICE

J2319™

OCT2019

Issued 1997-04
Stabilized 2019-10

Superseding J2319 APR1997

Low-Speed Impact Bumper System Test Procedure for Passenger Vehicles

RATIONALE

This technical report is being stabilized because it covers technology, products, or processes for which technical expertise no longer resides in the owning committee.

STABILIZED NOTICE

This document has been declared "Stabilized" by the SAE Motor Vehicle Council 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.

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2019 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
<http://www.sae.org>

SAE WEB ADDRESS:

Full document details: [SAE J2319_201910](http://standards.sae.org/J2319_201910)

SAE values your input. To provide feedback on this
Technical Report, please visit
http://standards.sae.org/J2319_201910

Documents
Document Sharing Hub

Foreword—This SAE Recommended Practice establishes a complete test procedure to evaluate the impact resistance of passenger vehicles in low-speed front and rear impacts. It is a replacement for SAE J980a Procedure as written by the Passenger Car Bumper Committee in July of 1971 which used only a pendulum as the impacting device.

1. Scope—The scope of this SAE Recommended Practice is restricted to the testing of original equipment on passenger vehicles and to provide for a uniform industry test procedure.

1.1 Purpose—The purpose of this document is to define a test procedure for evaluating bumper systems, utilizing both pendulum and fixed barrier impact testing.

1.2 Field of Application—The test consists of longitudinal and angular pendulum impacts into a stationary vehicle and moving vehicle impacts into a stationary flat barrier.

1.3 Product Classification—This document applies to passenger motor vehicles other than multipurpose passenger vehicles.

2. References

2.1 Applicable Publications—The following publications form a part of this specification to the extent specified herein. The latest issue of publications shall apply.

2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J222—Parking Lamps (Front Position Lamps)

SAE J585—Tail Lamps (Rear Position Lamps) for Use on Motor Vehicles Less Than 2032 mm in Overall Width

SAE J586—Stop Lamps for Use on Motor Vehicles Less than 2032 mm in Overall Width

SAE J588—Turn Signal Lamps for Use on Motor Vehicles Less than 2032 mm in Overall Width

SAE J592—Clearance, Side Marker, and Identification Lamps

SAE J593—Backup Lamps (Reversing Lamps)

SAE J599—Lighting Inspection Code

SAE J602—Headlamp Aiming Device for Mechanically Aimable Headlamp Units

SAE J980 CANCELLED—Bumper Evaluation Test Procedure, Passenger Cars

SAE J1319—Fog Tail Lamp (Rear Fog Lamp) Systems

SAE J2087—Daytime Running Lamps

- 2.1.2 FEDERAL MOTOR VEHICLE SAFETY REGULATION—Available from the Superintendent of Documents, U. S. Government Printing Office, Mail Stop: SSOP, Washington, DC 20402-9320.

Title 49 CFR, Part 581—Bumper Standard
FMVSS definitions, Code of Federal Regulations, Title 49 CFR 571.3
FMVSS 108

- 2.1.3 CANADA MOTOR VEHICLE SAFETY STANDARD—Available from Transport Canada, Road Safety and Motor Vehicle Regulation Directorate, P.O. Box 8880, Ottawa Post Terminal, Ottawa, Ontario, K1G.3J2.

CMVSS No. 108
CMVSS No. 215

- 2.1.4 OTHER APPLICABLE REFERENCES

Individual state laws if applicable
Motor Vehicle Information and Cost Savings Act, P.L. 92-513, 15 U.S.C. 1901-1991

3. **Definitions**—All terms defined in the Motor Vehicle Information and Cost Savings Act, P.L. 92-513, 15 U.S.C. 1901-1991, are used as defined therein.

- 3.1 **Unloaded Vehicle Weight**—The weight of a vehicle with maximum capacity of all fluids and lubricants necessary for operation of the vehicle, but without occupants or cargo.

- 3.2 **Maximum Option Vehicle Weight**—The “unloaded vehicle weight” of a vehicle model when it is equipped with maximum weight available factory installed options on the particular model.

- 3.3 **Passenger Car**—Means a motor vehicle with motive power, except a multipurpose passenger vehicle, motorcycle, or trailer, designed for carrying 10 persons or less.

- 3.4 **Multipurpose Passenger Vehicle**—Means a motor vehicle with motive power, except a trailer, designed to carry 10 persons or less which is constructed either on a truck chassis or with special features for occasional off-road operation.

- 3.5 **Bumper Face Bar**—Any component of the bumper system that contacts the impact ridge of the impact pendulum test device or any component that is part of the same load-bearing structure.

4. **Technical Requirements**

4.1 **Test Facilities**

- 4.1.1 Impact pendulum test device (IPTD) construction and characteristics are described and shown in Figures 1 and 2.

- 4.1.1.1 The IPTD's impacting block shall be contoured as specified in Figures 1 and 2. The impact ridge is made of AISI steel with a minimum hardness of 30 Rockwell C.

- 4.1.1.2 The IPTD shall be constructed in such a way as to maintain Plane A vertical within ± 0.25 degree and the impact line horizontal within ± 0.25 degree from release until the onset of rebound.

- 4.1.1.3 Planes A and B of the IPTD shall be instrumented to measure the longitudinal contact force during impact tests. Capabilities shall exist for recording contact loads to at least 1140 kg (2500 lb) on each contact plane. Methods shall be used to compensate for inertial induced errors. The system's accuracy shall be demonstrated prior to the initiation of testing.

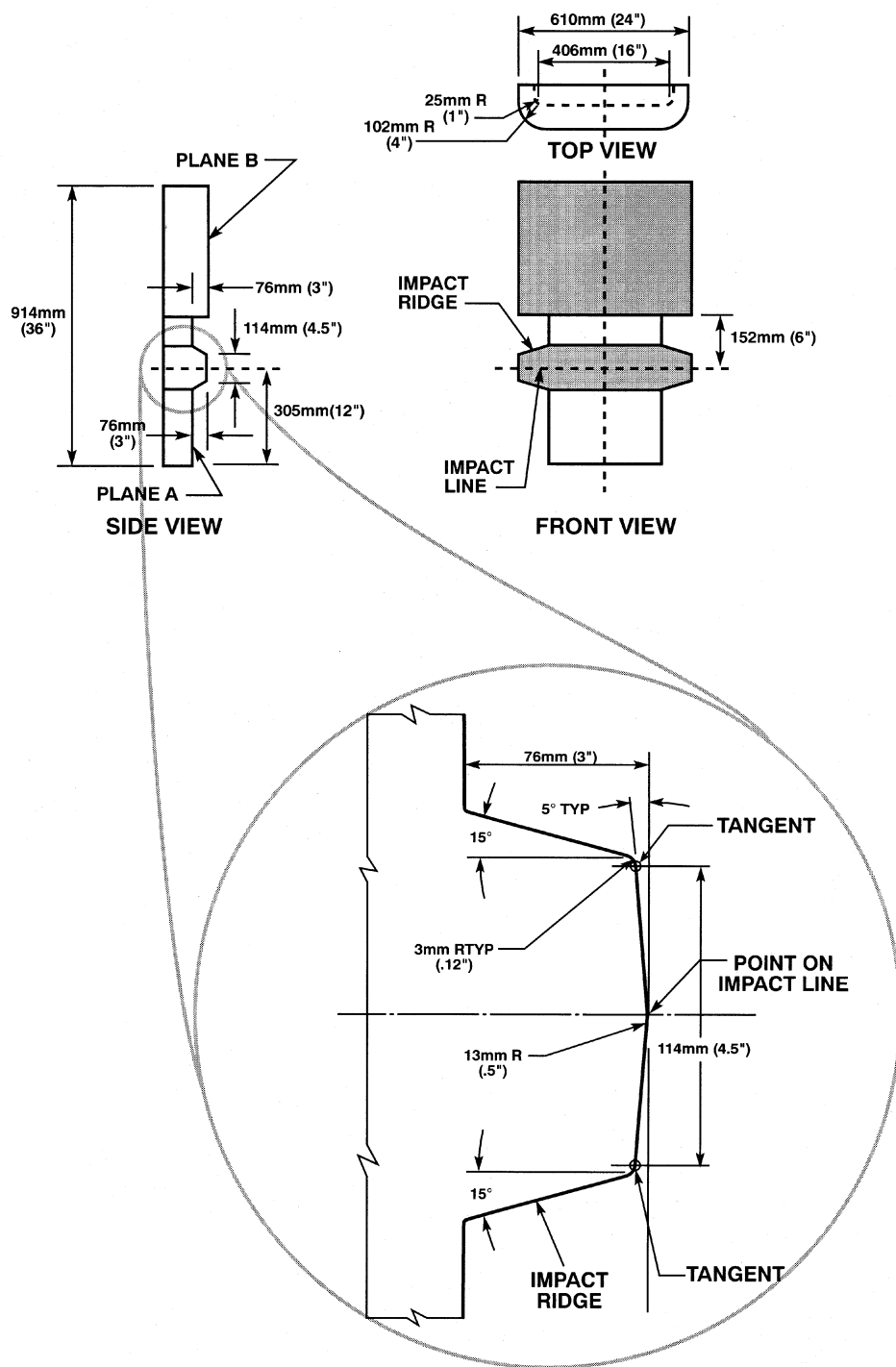


FIGURE 1—BUMPER IMPACT PENDULUM TEST DEVICE WITH "PLANE B" INSTALLED

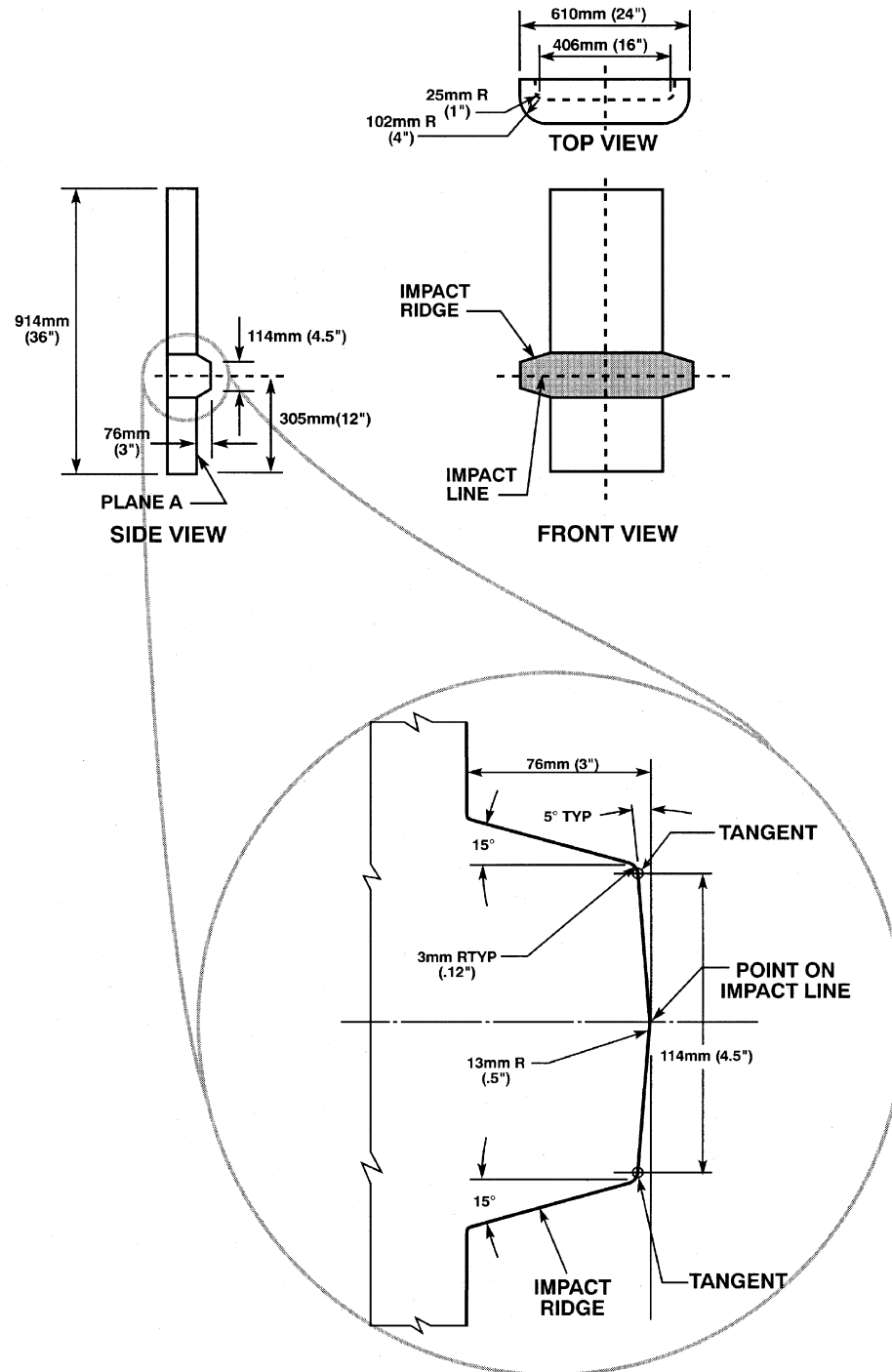


FIGURE 2—BUMPER IMPACT PENDULUM TEST DEVICE WITH “PLANE A” ONLY