

	SURFACE VEHICLE INFORMATION REPORT	
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Superseding J128 NOV94		
Occupant Restraint System Evaluation - Passenger Cars and Light-Duty Trucks		

RATIONALE

This document is not only severely outdated in many areas, but it is also contradictory to what is practiced today with respect to placement of children only in the rear seat. If we simply reaffirm - then we are stating the committee still feels this document is valid. Because of the obsolescence - it is a waste of time to update it. Therefore - the best solution is to stabilize it.

STABILIZED NOTICE

This document has been declared "Stabilized" by the SAE Restraint Systems Standards Steering 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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Foreword—This Document has also changed to comply with the new SAE Technical Standards Board format.

The purpose of this SAE Information Report is to further the development of passenger car and light-duty truck restraint systems. This report should aid that goal by:

- a. Describing standardized restraint system testing methods so that results from various test laboratories can be compared.
- b. Serving as a guide in the design and development of restraint systems and in the preparation of detailed procedures for testing and evaluating specific types of restraint systems.
- c. Providing an orientation for research in human tolerance to impact and for the development of improved human simulators.

The evaluation procedures discussed are presented as an Information Report. Due to continuously evolving instrumentation/measurement systems, collision simulation, and data on human tolerance to impact, this report will necessarily be subject to continuing review and improvement. Nevertheless, the outlined procedures are intended to form the basis for overall evaluation of any means by which a collision energy exchange between a vehicle and its occupant(s) is measured. Where present knowledge does not allow for rigorous specifications consistent with this broad outlook, an attempt has been made to avoid arbitrary or restrictive statements. The state-of-the-art in testing, engineering judgment, and experience must provide major guidance in restraint system evaluation.

1. **Scope**—This SAE Information Report discusses the significant factors which measure the effectiveness of the total occupant restraint system in commonly encountered collision configurations. The total system includes the components which affect occupant injury by influencing the manner in which the collision energy management is accomplished. In addition to the elements that contribute to impact attenuation, consideration must be given to factors that encourage maximum use, such as comfort, reliability, appearance, and convenience. Hence, system evaluation necessarily involves consideration of the complete vehicle.

2. **References**

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

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

SAE J114—Seat Belt Assembly Webbing Abrasion Performance Requirements
SAE J117—Dynamic Test Procedures—Type 1 and Type 2 Seat Belts
SAE J140—Seat Belt Hardware Test Procedure
SAE J141—Seat Belt Hardware Performance Requirements
SAE J184—Qualifying a Sound Data Acquisition System
SAE J211—Instrumentation for Impact Tests
SAE J247—Instrumentation for Measuring Acoustic Impulses Within Vehicles
SAE J339—Seat Belt Assembly Webbing Abrasion Test Procedure
SAE J800—Motor Vehicle Seat Belt Assembly Installation
SAE J850—Barrier Collision Tests
SAE J885—Human Tolerance to Impact Conditions as Related to Motor Vehicle Design
SAE J972—Moving Barrier Collision Tests
SAE J1211—Recommended Environmental Practices for Electronic Equipment Design
SAE J1368—Child Restraint Anchorages and Attachment Hardware
SAE J1369—Anchorage Provisions for Installation of Child Restraint Tether Straps in Rear Seating Positions
SAE J1460—Human Mechanical Response Characteristics
SAE J1819—Securing Child Restraint Systems in Motor Vehicles
SAE Paper 791026—A Comparison Between Part 572 Dummy and Human Subject in the Problem of Submarining, Leung, Y.C., Tarriere, C., Fayon, A., Mairesse, P., Delmas, A., Banzet, P., In 23rd Stapp Car Crash Conference Proceedings, 1979.
SAE Paper 892440—Assessing Submarining and Abdominal Injury Risk in the Hybrid III Family of Dummies, Rouhana, S.W., Viano, D.C., Jedrzejczak, E.A., McCleary, J.D., In 33rd Stapp Car Crash Conference Proceedings, 1989.
SAE Paper 902317—Assessing Submarining and Abdominal Injury Risk in the Hybrid III Family of Dummies: Part II—Development of the Small Female Frangible Abdomen, Rouhana, S.W., Jedrzejczak, E.A., McCleary, J.D., In 34th Stapp Car Crash Conference Proceedings, 1990.

2.1.2 FMVSS PUBLICATIONS—Available from the Superintendent of Documents, U. S. Government Printing Office, Mail Stop: SSOP, Washington, DC 20402-9320.

FMVSS 208—Occupant Crash Protection
FMVSS 214—Side Impact Protection

2.1.3 U.S. GOVERNMENT PUBLICATIONS—Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

United States Patent 3,841,163: Daniel, R.F.; Test Dummy Submarining Indicator System; October 15, 1974.
49 CFR Part 572: Test Dummy Specifications—Anthropomorphic Test Dummy for Applicable Test Procedures

2.1.4 OTHER PUBLICATIONS

Mertz, H.J.: Anthropomorphic Test Devices In Accidental Injury: Biomechanics and Prevention, Springer-Verlag, 1993.

3. Technical Information

3.1 Design and Testing Guidelines—The following is a suggested checklist for evaluating restraint system characteristics.