SAE International

SURFACE VEHICLE RECOMMENDED PRACTICE

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Superseding J135 SEP1993

Service Brake System Performance Requirements - Passenger Car-Trailer Combinations

RATIONALE

This document has been determined to contain basic and stable technology which is not dynamic in nature.

STABILIZED NOTICE

This document has been declared "Stabilized" by the SAE Road 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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Foreword—This Reaffirmed Document has been changed only to reflect the new SAE Technical Standards Board Format.

The performance requirements in this SAE Recommended Practice represent the accumulation of the best information available from investigations of the service brake system performance of combinations of new passenger cars and new trailers (braked or unbraked) designed for roadway use. They also represent the minimum performance recognized as acceptable by vehicle, brake system, and component manufacturers. This document may be used to determine the maximum weight of unbraked trailers the towing vehicle is recommended to pull.

1. ***Scope***—This SAE Recommended Practice presents service brake performance requirements for brake systems of all combinations of new passenger cars and new trailers (braked or unbraked) intended for roadway use (excluding special-purpose vehicles such as ambulances, hearses, etc.).

Acceptable performance requirements are based on data obtained from SAE J134.

1.1 **Purpose**—The purpose of this document is to establish the minimum service brake system performance requirements with regard to:

1.1.1 STOPPING ABILITY

1.1.1.1 Of cold brakes as affected by vehicle speed.

1.1.1.2 Of hot brakes as affected by vehicle speed and duty cycles.

1.1.1.3 Of cold brakes during emergency or inoperative power assist conditions.

1.1.2 PEDAL FORCE—Maximum and/or minimum force allowable.

1.1.3 BRAKE STABILITY

1.1.4 BRAKE SYSTEM INTEGRITY

2. *References*

2.1 Applicable Publication—The following publication forms a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply.

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

SAE J134—Brake System Road Test Code—Passenger Car and Light Duty Truck-Trailer Combinations

3. *Instrumentation—*See SAE J134, Section 4.

4. *Installation Details—*See SAE J134, Section 5.

5. *Test Procedure—*See SAE J134, Section 6.

6. *Acceptable Performance Requirements*

6.1 Preburnish Check—See SAE J134, 6.2.

6.1.1 Pedal force shall be between 45 and 245 N (10 and 55 lb) inclusive, for 3 m/s^2 (10 ft/s^2) stops from 48 km/h (30 mph).

6.2 Effectiveness Test—See SAE J134, 6.3, 6.5, and 6.14.

6.2.1 48 km/h (30 mph)—Pedal force shall be between 67 and 445 N (15 and 100 lb) inclusive, for 4.9 m/s^2 (16 ft/s^2).

6.2.2 96 km/h (60 mph)—Pedal force shall be between 67 and 534 N (15 and 120 lb) inclusive, for 4.9 m/s^2 (16 ft/s^2).

6.3 Emergency Brake System Test—See SAE J134, 6.6.

6.3.1 Maximum stopping distance of 305 m (1000 ft) with a maximum pedal force of 890 N (200 lb) without causing any tire of either vehicle to leave a 3.7 m (12 ft) lane.

6.4 Inoperative Power System Test—See SAE J134, 6.7.

6.4.1 Maximum stopping distance of 183 m (600 ft) with a maximum pedal force of 890 N (200 lb) without leaving a 3.7 m (12 ft) lane.

6.5 First Fade and Recovery Test—See SAE J134, 6.8.

6.5.1 FADE—Pedal force for first four 4.6 m/s^2 (15 ft/s^2) stops shall not exceed 534, 654, 770, and 890 N (120, 147, 173, and 200 lb), respectively.

6.5.2 RECOVERY—A minimum of 1.5 m/s^2 (5 ft/s^2) shall be maintained at a maximum pedal force of 890 N (200 lb) for the first five recovery stops, and the pedal force shall be below 667 N (150 lb) at 3 m/s^2 (10 ft/s^2) by stop 6.

6.6 Second Fade and Recovery Test—See SAE J134, 6.11.

6.6.1 FADE—Pedal force for first eight at 4.6 m/s^2 (15 ft/s^2) stops shall not exceed 534, 587, 636, 689, 738, 787, 841, and 890 N (120, 132, 143, 155, 166, 177, 189, and 200 lb), respectively.

6.6.2 RECOVERY—Same as First Recovery Requirement, 7.5.

6.7 Stability Requirements—See SAE J134, 6.3, 6.5, and 6.14.

6.7.1 No uncontrollable braking action causing any tire of either vehicle to leave a 3.7 m (12 ft) wide roadway lane is permissible below 4.9 m/s^2 (16 ft/s^2). (Wheel slide permitted.)

6.8 Final Inspection—See SAE J134, 6.15.

6.8.1 LINING—Shall be firmly attached and intact on shoes. (Minor cracks that do not impair attachment are acceptable.)

6.8.2 MECHANICAL—All components of the brake system shall be intact and functional.

6.8.3 HYDRAULIC—All hydraulic components of the brake system shall be leakfree.

6.8.4 ELECTRICAL—All electrical components of the trailer brake system, excluding stop light circuits, shall be intact and functional.

7. Report Form—General Data and Summary Report Form, Figure 1.