

Service Brake System Performance Requirements— Light-Duty Truck—SAE J155

SAE Recommended Practice
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SERVICE BRAKE SYSTEM PERFORMANCE REQUIREMENTS—LIGHT-DUTY TRUCK—SAE J155

SAE Recommended Practice

Report of Brake Committee and Automotive Safety Committee approved May 1971. Editorial change November 1978.

1. Introduction—The performance requirements in this SAE Recommended Practice represent the accumulation of the best information available from investigations of the brake system performance of new motor vehicles designed for roadway use.

2. Scope—This SAE Recommended Practice presents performance requirements for the brake systems of light-duty trucks and multipurpose passenger vehicles up to and including 6000 lb (2700 kg) gw. Acceptable performance requirements are based on data obtained from SAE J843d (March, 1973).

3. Purpose—The purpose of this practice is to establish minimum brake system performance requirements with regard to:

3.1 Stopping Ability

- 3.1.1 Of cold brakes as affected by vehicle speed and load.
- 3.1.2 Of hot brakes as affected by vehicle speed and duty cycles.
- 3.1.3 Of cold brakes during emergency conditions.
- 3.1.4 Of cold brakes with inoperative power assist.
- 3.1.5 Of cold brakes as affected by wetting with water.

3.2 Pedal Force—Maximum and/or minimum effort allowable.

3.3 Brake Stability

- 4. **Instrumentation**—See SAE J843d (March, 1973), paragraph 3.
- 5. **Installation Details**—See SAE J843d (March, 1973), paragraph 4.
- 6. **Test Procedure**—See SAE J843d (March, 1973), paragraph 5.

7. Acceptable Performance Requirements

7.1 Preburnish Check—See SAE J843d (March, 1973), paragraph 5.2.

7.1.1 Pedal force shall be between 10 and 65 lb (44 and 289 N) inclusive, for 10 ft/s² (3 m/s²) stops from 30 mph (48 km/h).

7.2 Effectiveness Test—See SAE J843d (March, 1973), paragraphs 5.3, 5.7, and 5.17.

7.2.1 30 mph (48 km/h)—Pedal force shall be between 15 and 100 lb (67 and 445 N), inclusive, for 18 ft/s² (5.5 m/s²).

7.2.2 60 mph (97 km/h)—Pedal force shall be between 15 and 120 lb (67 and 534 N), inclusive, for 18 ft/s² (5.5 m/s²).

7.2.3 80 mph (129 km/h) (where applicable)—Pedal force shall be between 20 and 150 lb (89 and 667 N), inclusive, for 18 ft/s² (5.5 m/s²).

7.3 Emergency Brake System Test—See SAE J843d (March, 1973), paragraph 5.5.

7.3.1 Maximum stopping distance of 600 ft (183 m) with a maximum pedal force of 200 lb (890 N) maintaining the vehicle in a 12 ft (3.7 m) lane.

7.3.2 Pedal force to actuate failure warning system shall not be more than 50 lb (222 N) for manually operated brakes, or 30 lb (133 N) for power brakes.

7.4 Inoperative Power Assist System Test—See SAE J843d (March,

1973), paragraph 5.6.

7.4.1 Maximum stopping distance of 600 ft (183 m), with a maximum pedal force of 200 lb (890 N) maintaining the vehicle in a 12 ft (3.7 m) lane.

7.5 Minimum Load Test—See SAE J843d (March, 1973), paragraph 5.8.

7.5.1 Maintain a deceleration of not less than 18 ft/s² (5.5 m/s²), with a pedal force not to exceed 120 lb (534 N).

7.6 High Speed Stop Test—See SAE J843d (March, 1973), paragraph 5.9.

7.6.1 Maintain a deceleration of not less than 15 ft/s² (4.8 m/s²), with a pedal force not to exceed 200 lb (890 N).

7.7 First Fade and Recovery Test—See SAE J843d (March, 1973), paragraph 5.11.

7.7.1 FADE—Pedal force for first four 15 ft/s² (4.8 m/s²) stops shall not exceed 120, 147, 173, and 200 lb (534, 654, 770, and 890 N), respectively.

7.7.2 RECOVERY—A minimum of 5 ft/s² (1.5 m/s²) shall be maintained at a maximum pedal force of 200 lb (890 N) for the first five recovery stops, and the pedal force shall not exceed 150 lb (667 N) at 10 ft/s² (3.0 m/s²) by stop 6.

7.8 Second Fade and Recovery Test—See SAE J843d (March, 1973), paragraph 5.14.

7.8.1 FADE—Pedal force for first eight 15 ft/s² (4.8 m/s²) stops shall not exceed 120, 132, 143, 155, 166, 177, 189, and 200 lb (534, 587, 636, 689, 738, 787, 841, and 890 N), respectively.

7.8.2 RECOVERY—Same as First Recovery Requirement (paragraph 7.7.2).

7.9 Stability Requirements—See SAE J843d (March, 1973), paragraphs 5.3, 5.7, and 5.17.

7.9.1 No uncontrollable braking action causing the vehicle to leave a 12 ft (3.7 m) wide roadway lane is permissible below 18 ft/s² (5.5 m/s²).

7.10 Final Inspection—See SAE J843d (March, 1973), paragraph 5.18.

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

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

7.10.3 HYDRAULIC—All hydraulic components of the brake system shall be leak free.

7.11 Water Recovery—See SAE J843d (March, 1973), paragraph 5.19.

7.11.1 Pedal force for 8 ft/s² (2.4 m/s²) shall not exceed 200 lb (890 N) during stops 4 through 6, 100 lb (445 N) during stops 7 through 14, and shall be within 20 lb (89 N) of average Baseline Check Stop Force at stop 15.

8. Report Form—General Data and Summary Report Form, Fig. 1.

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