

## § 232.101

sections: §§ 229.27, 231.31, 232.1, 232.3, 232.7, 232.11, 232.15, 232.17, 232.103, 232.105, 232.107, 232.109, 232.111, 232.203, 232.205, 232.207, 232.209, 232.211, 232.213, 232.303, 232.307, 232.309, 232.403, 232.405, 232.407, 232.409, 232.503, 232.505.

## Subpart B—General Requirements

### § 232.101 Scope.

This subpart contains general operating, performance, and design requirements for each railroad that operates freight or other non-passenger trains and for specific equipment used in those operations.

### § 232.103 General requirements for all train brake systems.

(a) The primary brake system of a train shall be capable of stopping the train with a service application from its maximum operating speed within the signal spacing existing on the track over which the train is operating.

(b) If the integrity of the train line of a train brake system is broken, the train shall be stopped. If a train line uses other than solely pneumatic technology, the integrity of the train line shall be monitored by the brake control system.

(c) A train brake system shall respond as intended to signals from the train line.

(d) One hundred percent of the brakes on a train shall be effective and operative brakes prior to use or departure from any location where a Class I brake test is required to be performed on the train pursuant to § 232.205.

(e) A train shall not move if less than 85 percent of the cars in that train have operative and effective brakes.

(f) Each car in a train shall have its air brakes in effective operating condition unless the car is being moved for repairs in accordance with § 232.15. The air brakes on a car are not in effective operating condition if its brakes are cut-out or otherwise inoperative or if the piston travel exceeds:

(1) 10½ inches for cars equipped with nominal 12-inch stroke brake cylinders; or

(2) The piston travel limits indicated on the stencil, sticker, or badge plate

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for the brake cylinder with which the car is equipped.

(g) Except for cars equipped with nominal 12-inch stroke (8½ and 10-inch diameters) brake cylinders, all cars shall have a legible decal, stencil, or sticker affixed to the car or shall be equipped with a badge plate displaying the permissible brake cylinder piston travel range for the car at Class I brake tests and the length at which the piston travel renders the brake ineffective, if different from Class I brake test limits. The decal, stencil, sticker, or badge plate shall be located so that it may be easily read and understood by a person positioned safely beside the car.

(h) All equipment ordered on or after August 1, 2002, or placed in service for the first time on or after April 1, 2004, shall have train brake systems designed so that an inspector can observe from a safe position either the piston travel, an accurate indicator which shows piston travel, or any other means by which the brake system is actuated. The design shall not require the inspector to place himself or herself on, under, or between components of the equipment to observe brake actuation or release.

(i) All trains shall be equipped with an emergency application feature that produces an irretrievable stop, using a brake rate consistent with prevailing adhesion, train safety, and brake system thermal capacity. An emergency application shall be available at all times, and shall be initiated by an unintentional parting of the train line or loss of train brake communication.

(j) A railroad shall set the maximum main reservoir working pressure.

(k) The maximum brake pipe pressure shall not be greater than 15 psi less than the air compressor governor starting or loading pressure.

(l) Except as otherwise provided in this part, all equipment used in freight or other non-passenger trains shall, at a minimum, meet the Association of American Railroads (AAR) Standard S-469-47, “Performance Specification for Freight Brakes,” contained in the AAR *Manual of Standards and Recommended Practices, Section E* (April 1, 1999). The incorporation by reference of this AAR standard was approved by the Director of the Federal Register in accordance