

required to be repeated at the first passenger terminal if the train remains on a source of compressed air and:

(1) The train remains in the custody of the train crew; or

(2) The train crew receives notice that the Class IA brake test has been performed.

(d) The Class IA brake test shall be performed by either a qualified person or a qualified maintenance person.

(e) Except as provided in § 238.15(b), a railroad shall not use or haul a passenger train in passenger service from a location where a Class IA brake test has been performed, or was required by this part to have been performed, with less than 100 percent operative brakes.

(f) A Class IA brake test shall be performed at the air pressure at which the train's air brakes will be operated and shall determine and ensure that:

(1) Brake pipe leakage does not exceed 5 pounds per square inch per minute if brake pipe leakage will affect service performance;

(2) Each brake sets and releases by inspecting in the manner described in paragraph (g) of this section;

(3) For MU locomotives that utilize an electric signal to communicate a service brake application and only a pneumatic signal to propagate an emergency brake application, the emergency brake application functions as intended.

(4) Each angle cock and cutout cock is properly set;

(5) The communication of brake pipe pressure changes at the rear of the train is verified, which may be accomplished by observation of an application and release of the brakes on the last car in the train; and

(6) The communicating signal system is tested and known to be operating as intended; a tested and operating two-way radio system meets this requirement.

(g) In determining whether each brake sets and releases—

(1) The inspection of the set and release of the brakes shall be completed by walking the train to directly observe the set and release of each brake, if the railroad determines that such a procedure is safe.

(2) If the railroad determines that operating conditions pose a safety hazard

to an inspector walking the brakes, brake indicators may be used to verify the set and release on cars so equipped. However, the observation of the brake indicators shall not be made from the cab of the locomotive. The inspector shall walk the train in order to position himself or herself to accurately observe each indicator.

[64 FR 25660, May 12, 1999, as amended at 65 FR 41310, July 3, 2000; 67 FR 19991, Apr. 23, 2002]

#### § 238.317 Class II brake test.

(a) A Class II brake test shall be performed on a passenger train when any of the following events occurs:

(1) Whenever the control stand used to control the train is changed; except if the control stand is changed to facilitate the movement of a passenger train from one track to another within a terminal complex while not in passenger service. In these circumstances, a Class II brake test shall be performed prior to the train's departure from the terminal complex with passengers;

(2) Prior to the first morning departure of each commuter or short-distance intercity passenger train where a Class I brake test remains valid as provided in § 238.315(a)(1);

(3) When previously tested units (i.e., cars that received a Class I brake test within the previous calendar day and have not been disconnected from a source of compressed air for more than four hours) are added to the train;

(4) When cars or equipment are removed from the train; and

(5) When an operator first takes charge of the train, except for face-to-face relief.

(b) A Class II brake test shall be performed by a qualified person or a qualified maintenance person.

(c) Except as provided in § 238.15, a railroad shall not use or haul a passenger train in passenger service from a terminal or yard where a Class II brake test has been performed, or was required by this part to have been performed, with any of the brakes cut-out, inoperative, or defective.

(d) In performing a Class II brake test on a train, a railroad shall determine that:

(1) The brakes on the rear unit of the train apply and release in response to a

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signal from the engineer's brake valve or controller of the leading or controlling unit, or a gauge or similar device located at the rear of the train or in the cab of the rear unit indicates that brake pipe pressure changes are properly communicated at the rear of the train;

(2) For MU locomotives that utilize an electric signal to communicate a service brake application and only a pneumatic signal to propagate an emergency brake application, the emergency brake application functions as intended.

(3) The communicating signal system is tested and known to be operating as intended; a tested and operating two-way radio system meets this requirement.

[64 FR 25660, May 12, 1999, as amended at 65 FR 41310, July 3, 2000; 67 FR 19991, Apr. 23, 2002]

### § 238.319 Running brake test.

(a) As soon as conditions safely permit, a running brake test shall be performed on each passenger train after the train has received, or was required under this part to have received, either a Class I, Class IA, or Class II brake test.

(b) A running brake test shall be performed whenever the control stand used to control the train is changed to facilitate the movement of a passenger train from one track to another within a terminal complex while not in passenger service.

(c) The running brake test shall be conducted in accordance with the railroad's established operating rules, and shall be made by applying brakes in a manner that allows the engineer to ascertain whether the brakes are operating properly.

(d) If the engineer determines that the brakes are not operating properly, the engineer shall stop the train and follow the procedures provided in § 238.15.

## Subpart E—Specific Requirements for Tier II Passenger Equipment

### § 238.401 Scope.

This subpart contains specific requirements for railroad passenger

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equipment operating at speeds exceeding 125 mph but not exceeding 150 mph. The requirements of this subpart apply beginning on September 9, 1999. As stated in § 238.433(b), all such passenger equipment remains subject to the requirements concerning couplers and uncoupling devices contained in Federal statute at 49 U.S.C. chapter 203 and in FRA regulations at part 231 and § 232.2 of this chapter.

### § 238.403 Crash energy management.

(a) Each power car and trailer car shall be designed with a crash energy management system to dissipate kinetic energy during a collision. The crash energy management system shall provide a controlled deformation and collapse of designated sections within the unoccupied volumes to absorb collision energy and to reduce the decelerations on passengers and crewmembers resulting from dynamic forces transmitted to occupied volumes.

(b) The design of each unit shall consist of an occupied volume located between two normally unoccupied volumes. Where practical, sections within the unoccupied volumes shall be designed to be structurally weaker than the occupied volume. During a collision, the designated sections within the unoccupied volumes shall start to deform and eventually collapse in a controlled fashion to dissipate energy before any structural damage occurs to the occupied volume.

(c) At a minimum, each Tier II passenger train shall be designed to meet the following requirements:

(1) Thirteen megajoules (MJ) shall be absorbed at each end of the train through the controlled crushing of unoccupied volumes, and of this amount a minimum of 5 MJ shall be absorbed ahead of the operator's cab in each power car;

(2) A minimum of an additional 3 MJ shall be absorbed by the power car structure between the operator's cab and the first trailer car; and

(3) The end of the first trailer car adjacent to each power car shall absorb a minimum of 5 MJ through controlled crushing.