

§ 229.141

(2) All controlling locomotives operated at speeds in excess of 25 mph on or after January 1, 2017.

(b) The alerter on locomotives subject to paragraph (a) of this section shall be equipped with a manual reset and the alerter warning timing cycle shall automatically reset as the result of any of the following operations, and at least three of the following automatic resets shall be functional at any given time:

- (1) Movement of the throttle handle;
- (2) Movement of the dynamic brake control handle;
- (3) Movement of the operator's horn activation handle;
- (4) Movement of the operator's bell activation switch;
- (5) Movement of the automatic brake valve handle; or
- (6) Bailing the independent brake by depressing the independent brake valve handle.

(c) All alerters shall provide an audio alarm upon expiration of the timing cycle interval. An alerter on a locomotive that is placed in service for the first time on or after June 10, 2013, shall display a visual indication to the operator at least five seconds prior to an audio alarm. The visual indication on an alerter so equipped shall be visible to the operator from their normal position in the cab.

(d) Alerter warning timing cycle interval shall be within 10 seconds of the calculated setting utilizing the formula (timing cycle specified in seconds = $2400 \div$ track speed specified in miles per hour). For locomotives operating at speeds below 20 mph, the interval shall be between 110 seconds and 130 seconds.

(e) Any locomotive that is equipped with an alerter shall have the alerter functioning and operating as intended when the locomotive is used as a controlling locomotive.

(f) A controlling locomotive equipped with an alerter shall be tested prior to departure from each initial terminal, or prior to being coupled as the lead locomotive in a locomotive consist by allowing the warning timing cycle to expire that results in an application of the locomotive brakes at a penalty rate.

[77 FR 21348, Apr. 9, 2012, as amended at 77 FR 75057, Dec. 19, 2012]

49 CFR Ch. II (10–1–13 Edition)

§ 229.141 Body structure, MU locomotives.

(a) MU locomotives built new after April 1, 1956 that are operated in trains having a total empty weight of 600,000 pounds or more shall have a body structure designed to meet or exceed the following minimum specifications:

(1) The body structure shall resist a minimum static end load of 800,000 pounds at the rear draft stops ahead of the bolster on the center line of draft, without developing any permanent deformation in any member of the body structure.

(2) An anti-climbing arrangement shall be applied at each end that is designed so that coupled MU locomotives under full compression shall mate in a manner that will resist one locomotive from climbing the other. This arrangement shall resist a vertical load of 100,000 pounds without exceeding the yield point of its various parts or its attachments to the body structure.

(3) The coupler carrier and its connections to the body structure shall be designed to resist a vertical downward thrust from the coupler shank of 100,000 pounds for any horizontal position of the coupler, without exceeding the yield points of the materials used. When yielding type of coupler carrier is used, an auxiliary arrangement shall be provided that complies with these requirements.

(4) The outside end of each locomotive shall be provided with two main vertical members, one at each side of the diaphragm opening; each main member shall have an ultimate shear value of not less than 300,000 pounds at a point even with the top of the underframe member to which it is attached. The attachment of these members at bottom shall be sufficient to develop their full shear value. If reinforcement is used to provide the shear value, the reinforcement shall have full value for a distance of 18 inches up from the underframe connection and then taper to a point approximately 30 inches above the underframe connection.

(5) The strength of the means of locking the truck to the body shall be at least the equivalent of an ultimate shear value of 250,000 pounds.

(6) On or after November 8, 1999, paragraph (a)(1) of this section does not apply to “passenger equipment” as defined in §238.5 of this chapter, unless such equipment is excluded from the requirements of §§238.203 through 238.219, and §238.223 of this chapter by operation of §238.201(a)(2) of this chapter. Paragraphs (a)(2) through (a)(4) of this section do not apply to “passenger equipment” as defined in §238.5 of this chapter that is placed in service for the first time on or after September 8, 2000, unless such equipment is excluded from the requirements of §§238.203 through 238.219, and §238.223 of this chapter by operation of §238.201(a)(2) of this chapter.

(b) MU locomotives built new after April 1, 1956 that are operated in trains having a total empty weight of less than 600,000 pounds shall have a body structure designed to meet or exceed the following minimum specifications:

(1) The body structure shall resist a minimum static end load of 400,000 pounds at the rear draft stops ahead of the bolster on the center line of draft, without developing any permanent deformation in any member of the body structure.

(2) An anti-climbing arrangement shall be applied at each end that is designed so that coupled locomotives under full compression shall mate in a manner that will resist one locomotive from climbing the other. This arrangement shall resist a vertical load of 75,000 pounds without exceeding the yield point of its various parts or its attachments to the body structure.

(3) The coupler carrier and its connections to the body structure shall be designed to resist a vertical downward thrust from the coupled shank of 75,000 pounds for any horizontal position of the coupler, without exceeding the yield points of the materials used. When a yielding type of coupler carrier is used, an auxiliary arrangement shall be provided that complies with these requirements.

(4) The outside end of each MU locomotive shall be provided with two main vertical members, one at each side of the diaphragm opening; each main member shall have an ultimate shear value of not less than 200,000 pounds at a point even with the top of the

underframe member to which it is attached. The attachment of these members at bottom shall be sufficient to develop their full shear value, the reinforcement shall have full value for a distance of 18 inches up from the underframe connection and then taper to a point approximately 30 inches above the underframe connection.

(5) The strength of the means of locking the truck to the body shall be at least the equivalent of an ultimate shear value of 250,000 pounds.

(6) On or after November 8, 1999, paragraph (a)(1) of this section does not apply to “passenger equipment” as defined in §238.5 of this chapter, unless such equipment is excluded from the requirements of §§238.203 through 238.219, and §238.223 of this chapter by operation of §238.201(a)(2) of this chapter. Paragraphs (a)(2) through (a)(4) of this section do not apply to “passenger equipment” as defined in §238.5 of this chapter that is placed in service for the first time on or after September 8, 2000, unless such equipment is excluded from the requirements of §§238.203 through 238.219, and §238.223 of this chapter by operation of §238.201(a)(2) of this chapter.

[45 FR 21109, Mar. 31, 1980, as amended at 71 FR 36912, June 28, 2006]

Subpart D—Locomotive Crashworthiness Design Requirements

§ 229.201 Purpose and scope.

(a) *Purpose.* The purpose of this subpart is to help protect locomotive cab occupants in the event that a locomotive collides with another locomotive or piece of on-track equipment, a shifted load on a freight car on an adjacent parallel track, or a highway vehicle at a highway-rail grade crossing.

(b) This subpart prescribes minimum crashworthiness standards for locomotives. It also establishes the requirements for obtaining FRA approval of: new locomotive crashworthiness design standards; changes to FRA-approved locomotive crashworthiness design standards; and alternative locomotive crashworthiness designs.

[71 FR 36912, June 28, 2006]