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will provide a means of keeping the brake applied when car is not in motion.

NOTE: The requirements of this rule will be satisfied if the ratchet or other suitable device operates in connection with at least one handbrake on track motorcars that may be equipped with more than one such brake.

(b) *Handholds*. One or more safe and suitable handholds conveniently located shall be provided. Each handhold shall be securely fastened to car.

(c) *Sill steps or footboards*. Each track motorcar shall be equipped with safe and suitable sill steps or footboards conveniently located and securely fastened to car when bed or deck of track motorcar is more than 24 inches above top of rail.

(d) *Couplers*. When used to haul other cars, each track motorcar shall be equipped with a coupler at each end where such cars are coupled (1) which provides a safe and secure attachment, (2) which can be coupled or uncoupled without the necessity of men going between the ends of the cars.

§ 231.26 Pushcars.

(a) *Handbrakes*. When used to transport persons, each pushcar shall be equipped with an efficient handbrake so located that it can be safely operated while the car is in motion.

(b) *Handholds (includes handles)*. Each pushcar shall be provided with one or more secure handholds. When used to transport persons, each pushcar shall be provided with one or more safe and suitable handholds conveniently located above the top of the bed of each pushcar.

(c) *Sill steps or footboards*. When used to transport persons, each pushcar shall be equipped with safe and suitable sillsteps or footboards conveniently located and securely fastened to car, when bed or deck of pushcar is more than 24 inches above top of rail.

(d) *Couplers*. When moved together with other vehicles, each pushcar shall be equipped with a coupler at each end where such vehicles are coupled (1) which provides a safe and secure attachment, and (2) which can be coupled or uncoupled without the necessity of men going between the ends of the cars.

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NOTE: Sections 231.25 and 231.26 are applicable only when the vehicles governed thereby are coupled together and moved together.

§ 231.27 Box and other house cars without roof hatches or placed in service after October 1, 1966.

(a) *Handbrakes*. The handbrake may be of any efficient design, but must provide the same degree of safety as, or a greater degree of safety than, the following specifications:

(1) *Number*. (i) Each box or other house car without roof hatches shall be equipped with an efficient vertical wheel handbrake which shall operate in harmony with the power brake thereon.

(ii) The handbrake may be of any efficient design, but must provide a total braking force applied to brake shoes not less than the total force applied to the brake shoes by the brake cylinders at 50 pounds per square inch.

(2) *Dimensions*. (i) The brake wheel may be deep or shallow, of malleable iron, wrought iron, steel, or other material of equivalent strength.

(ii) Overall diameter of brake wheel nominally twenty-two (22) inches.

(iii) Depth of brake wheel hub shall be two and five-eighths ($2\frac{5}{8}$) inches with square taper shaft fit, taper two (2) inches in twelve (12) inches with small end of taper fit seven-eighths ($\frac{7}{8}$) inches.

(iv) Brake wheel and drum shall be arranged so that both will revolve when applying and gradually releasing the handbrake. Handbrake shall be provided with means to prevent application of the brake by winding in a counterclockwise direction.

(v) Brake shaft shall be arranged with a square fit at its outer end to secure the handbrake wheel; said square fit shall be not less than seven-eighths ($\frac{7}{8}$) of an inch square. Square-fit taper: Nominally two (2) in twelve (12) inches (see Plate A).

(vi) All chains shall be not less than nine-sixteenths ($\frac{9}{16}$) inch BBB coil chain.

(vii) All handbrake rods shall be not less than three-fourths ($\frac{3}{4}$) inch diameter.

(3) *Location.* (i) The handbrake shall be so located that it can be safely operated from horizontal end platform while car is in motion.

(ii) The brake shaft shall be located on end of car, to the left of and not less than seventeen (17) nor more than twenty-two (22) inches from center and not less than twenty-six (26) nor more than forty (40) inches above top of end-platform tread.

(4) *Manner of application.* (i) Brake wheel shall be held in position on brake shaft by a nut on a threaded extended end of brake shaft; said thread portion shall be not less than three-fourths ($\frac{3}{4}$) of an inch in diameter; said nut shall be secured by riveting over or by the use of a locknut or suitable cotter.

(ii) Outside edge of brake wheel shall be not less than four (4) inches from a vertical plane parallel with end of car and passing through the inside face of knuckle when closed with coupler horn against the buffer block or end sill.

(iii) Handbrake housing shall be securely fastened to car.

(b) *End platforms*—(1) *Number.* Two (2).

(2) *Dimensions.* Width not less than eight (8) inches; length, not less than sixty (60) inches.

(3) *Location.* One (1) centered on each end of car between inner ends of handholds not more than eight (8) inches above top of center sill.

(4) *Manner of application.* (i) Each end platform shall be securely supported by not less than three (3) metal braces having a minimum cross sectional area of three-eighths ($\frac{3}{8}$) by one and one-half ($1\frac{1}{2}$) inches or equivalent, which shall be securely fastened to body of car with not less than one-half ($\frac{1}{2}$) inch bolts or rivets.

(ii) Where conventional draft gear or cushioning device having longitudinal travel less than six (6) inches is used the outside edge of each end platform shall be not less than twelve (12) inches from a vertical plane parallel with end of car and passing through the inside face of knuckle when closed with coupler horn against buffer block. Where cushioning device having longitudinal travel six (6) inches or more is used the outside edge of each end platform shall be not less than six (6) inches from a vertical plane parallel with end of car and passing through the inside face of

knuckle when closed with end sill and cushioning device at full buff. End platform shall be made of wood or of material which provides the same as or a greater degree of safety than wood of $1\frac{1}{8}$ inches thickness. When made of material other than wood the tread surface shall be of anti-skid design and constructed with sufficient open space to permit the elimination of snow and ice from the tread surface.

(c) *Sill steps*—(1) *Number.* Four (4).

(2) *Dimensions.* Minimum cross-sectional area one-half ($\frac{1}{2}$) by one and one-half ($1\frac{1}{2}$) inches, or equivalent, of wrought iron, steel, or other material of equivalent strength. Minimum length of tread, ten (10), preferably twelve (12) inches. Minimum clear depth, eight (8) inches.

(3) *Location.* (i) One (1) near each end of each side car, so that there shall be no more than eighteen (18) inches from end of car to center of tread of sill step.

(ii) Outside edge of tread of step shall be not more than four (4) inches inside of face of side of car, preferably flush with side of car.

(iii) Tread shall be not more than twenty-four (24), preferably not more than twenty-two (22) inches above the top of rail.

(4) *Manner of application.* (i) Sill steps exceeding twenty-one (21) inches in depth shall have an additional tread.

(ii) Sill steps shall be securely fastened with not less than one-half ($\frac{1}{2}$) inch bolts with nuts outside (when possible) and riveted over, or with not less than one-half ($\frac{1}{2}$) inch rivets.

(d) *End ladder (appliances) clearance.* No part of car above end sills within thirty (30) inches from side of car, except buffer block, brake shaft, brake wheel, end platform, horizontal end handholds, or uncoupling lever shall extend to within twelve (12) inches of a vertical plane parallel with end of car and passing through the inside face of knuckle, when closed with the coupler horn against the buffer block or end sill and cushioning device (if used) at full buff, and no other part of end of car or fixtures on same above end sill, other than exceptions herein noted, shall extend beyond outer face of buffer block.

(e) *Side handholds*—(1) *Number.* Sixteen (16).

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(2) *Dimensions.* Minimum diameter, five-eighths ($\frac{5}{8}$) of an inch, wrought iron, steel, or other material of equivalent strength. Minimum clear length, sixteen (16) inches, preferably twenty-four (24) inches. Minimum clearance, two (2), preferably two and one-half ($2\frac{1}{2}$) inches.

(3) *Location.* Horizontal; four (4) near each end and on each side of car spaced not more than nineteen (19) inches apart and with the bottom handhold located not more than twenty-one (21) inches from top tread of sill step, and top handhold shall coincide in height with top end handhold, a variation of two (2) inches being allowed. Spacing of side handholds shall be uniform within a limit of two (2) inches from top handhold to bottom handhold. Clearance of outer ends of handholds shall be not more than eight (8) inches from end of car.

(4) *Manner of application.* Side handholds shall be securely fastened with not less than one-half ($\frac{1}{2}$) inch bolts with nuts outside (when possible) and riveted over, or with not less than one-half ($\frac{1}{2}$) inch rivets. Each bottom handhold shall have foot guard or upward projection not less than two (2) inches in height near inside end.

(f) *End handholds—(1) Number.* Sixteen (16).

(2) *Dimensions.* (i) Minimum diameter, five-eighths ($\frac{5}{8}$) of an inch, wrought iron, steel, or other material of equivalent strength.

(ii) Minimum clear length, sixteen (16) inches, preferably twenty-four (24) inches.

(iii) Minimum clearance, two (2) preferably two and one-half ($2\frac{1}{2}$) inches.

(3) *Location.* Horizontal: Four (4) near each side and on each end of car spaced not more than nineteen (19) inches apart and with the bottom handhold located not more than twenty-one (21) inches from top tread of sill step, and top handhold shall coincide in height with end platform handholds, a variation of two (2) inches being allowed. Clearance of outer ends of handholds shall be not more than eight (8) inches from side of car.

(4) *Manner of application.* End handholds shall be securely fastened with not less than one-half ($\frac{1}{2}$) inch bolts with nuts outside (when possible)

and riveted over, or with not less than one-half ($\frac{1}{2}$) inch rivets. Each bottom handhold shall have foot guard or upward projection not less than two (2) inches in height near inside end.

(g) *Horizontal end-platform handholds—(1) Number.* Two (2).

(2) *Dimensions.* (i) Minimum diameter, five-eighths ($\frac{5}{8}$) of an inch, wrought iron, steel, or other material of equivalent strength.

(ii) Minimum clearance, two (2) preferably two and one-half ($2\frac{1}{2}$) inches.

(iii) Minimum clear length sixty (60) inches. When security of attachment requires, an extra supporting leg may be applied near center of clear length.

(3) *Location.* One (1) on each end of car above end platform. Outer legs shall be not more than six (6) inches from inner legs of top end handholds. Height above tread of end platform: Not less than forty-eight (48) nor more than sixty (60) inches.

(4) *Manner of application.* End-platform handholds shall be securely fastened with not less than one-half ($\frac{1}{2}$) inch bolts with nuts outside (when possible) and riveted over, or with not less than one-half ($\frac{1}{2}$) inch rivets.

(h) *Uncoupling levers—(1) Number.* Two (2).

(2) *Dimensions.* (i) Handles of uncoupling levers, except those shown on Plate B or of similar designs, shall be not more than six (6) inches from side of car.

(ii) Uncoupling levers of design shown on Plate B and of similar designs shall conform to the following prescribed limits:

(a) Handles shall be not more than twelve (12), preferably nine (9) inches from sides of car. Center lift arms shall be not less than seven (7) inches long.

(b) Center of eye at end of center lift arm shall be not more than three and one-half ($3\frac{1}{2}$) inches beyond center of eye of uncoupling pin of coupler when horn of coupler is against the buffer block or end sill (see Plate B).

(c) End of handles shall extend not less than four (4) inches below bottom of end sill or shall be so constructed as to give a minimum clearance of two (2) inches around handle. Minimum drop of handles shall be twelve (12) inches; maximum, fifteen (15) inches overall (see Plate B).

(iii) Handles of uncoupling levers of the "rocking" or "push-down" type shall be not less than eighteen (18) inches from top of rail when lockblock has released knuckle, and a suitable stop shall be provided to prevent inside arm from flying up in case of breakage.

(3) *Location.* One (1) on each end of car. When single lever is used, it shall be placed on left side of end of car.

(i) *Existing box and other house cars without roof hatches.* (1) Box and other house cars without roof hatches built on or before April 1, 1966, or under construction prior thereto and placed in service before October 1, 1966, shall be deemed equipped as nearly as possible within the intent of § 231.1 and of this section when:

(i) The running board, roof handholds over side and end ladders at "A" end of car and ladder treads above the fourth tread from bottom of side and end ladder at "A" end are removed;

(ii) One (1) horizontal end-platform handhold is applied on each end of car as specified in this section except the right hand end shall be not more than eight (8) inches from side of car, or where car end contour makes impractical the use of a single continuous end handhold, there is applied the equivalent consisting of two (2) handholds, the center handhold to be a minimum of thirty (30) inches in clear length and the handhold to the right to be a minimum of nineteen (19) inches in clear length and to extend to within eight (8) inches of the right side of the car, such handholds to be not more than twelve (12) inches apart; and

(iii) With handbrake operated near roof of car: a brake step shall be provided as specified in § 231.1 and lettering one and one-half (1½) inches high shall be painted on a yellow background on side sill near "B" end of car with a three-fourths (¾) inch black border containing the words "Keep Off Roof—No Running Board," or with handbrake operated from approximate level of top of end sill: roof handholds and side and end ladder treads above the fourth tread from the bottom of ladders at "B" end of car shall be removed and a brake step as specified by § 231.1 shall be used with top of tread surface being level with or not more

than four (4) inches below adjacent end handhold.

(2) Paragraph (i)(1)(ii) of this section shall not apply to cars equipped with end platforms and end platform handholds.

(j) *Painting and marking.* Box and other house cars with roofs 16 feet and 10 inches or more above top of rail shall be painted and marked as follows:

(1) That portion of each end of the car which is more than fifteen (15) feet above top of rail shall be painted with contrasting reflectorized paint and bear the words "excess height car" in lettering not less than three (3) inches high; and

(2) On each side sill near end corner there shall be painted or otherwise displayed a yellow rectangular area with a three-fourths (¾) inch black border containing the words "this car excess height" in lettering not less than one and one-half (1½) inches high.

(Secs. 2, 4, and 6, 27 Stat. 531, as amended; secs. 1 and 3, 32 Stat. 943, as amended; sec. 6(e) and (f), 80 Stat. 939 (45 U.S.C. 2, 4, 6, 8, and 10, 11-16 and 49 U.S.C. 103(c)(1))

[33 FR 19663, Dec. 25, 1968, as amended at 40 FR 34347, Aug. 15, 1975; 49 FR 26745, June 29, 1984]

§ 231.28 Box and other house cars with roof hatches built or placed in service after October 1, 1966.

The specifications of § 231.27 shall apply except as to the following:

(a) *Running boards.* Same as specified in § 231.1, except: the end of longitudinal running board shall be not less than six (6) inches from a vertical plane parallel with end of car and passing through the inside face of knuckle when closed with coupler horn against buffer block or end sill.

(b) *Ladders*—(1) *Number.* Two (2).

(2) *Dimensions.* (i) Minimum clear length of tread: Sixteen (16) inches.

(ii) Maximum spacing between treads nineteen (19) inches.

(3) *Location.* One (1) on each end of car not more than eight (8) inches from left-hand side.

(4) *Manner of application.* Same as specified in § 231.1.

(c) *Roof handholds*—(1) *Number.* Two (2), one (1) over each ladder.

(2) *Dimensions.* Same as specified in § 231.1.