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equipped as nearly as possible within the intent of § 231.1 and of this section when: Equipped as specified in § 231.1, except (1) the side ladder treads above the fourth tread from bottom of side ladder near "A" end of car and roof handhold over the side ladder near "A" end shall be removed; (2) and (1) end platform handhold shall be provided on each end of car as specified in § 231.27(i); and when handbrake is operated near roof of car a brake step shall be provided as specified by § 231.1 or when handbrake is operated from approximate level of top of end sill the roof handhold over side ladder near "B" end and treads above the fourth tread from bottom of side ladder near "B" end shall be removed and a brake step as specified in § 231.1 shall be used with top of tread surface level with or not more than four (4) inches below adjacent end handhold.

(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 49 FR 26745, June 29, 1984]

§ 231.29 Road locomotives with corner stairways.

After September 30, 1979, road locomotives with corner stairway openings must be equipped with (a) uncoupling mechanisms that can be operated safely from the bottom stairway opening step as well as ground level, and (b) the vertical handholds and horizontal end handholds prescribed in § 231.30(e) and (g). No part of the uncoupling mechanism may extend into the stairway opening or end platform area when the mechanism is in its normal position or when it is operated. Each carrier shall so equip forty percent (40 percent) of its road locomotives by October 1, 1977, seventy percent (70 percent) by October 1, 1978, and all its road locomotives by October 1, 1979.

[41 FR 37783, Sept. 8, 1976]

§ 231.30 Locomotives used in switching service.

(a) *General requirements.* (1) Except for steam locomotives equipped as provided in § 231.16 of this part, all locomotives used in switching service built

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after March 31, 1977, must be equipped as provided in this section.

(2) Except for steam locomotives equipped as prescribed in § 231.16 of this part, all locomotives built prior to April 1, 1977, used in switching service after September 30, 1979, shall be equipped as provided in this section. Each carrier shall so equip forty percent (40 percent) of such locomotives by October 1, 1977, seventy percent (70 percent) by October 1, 1978, and all such locomotives by October 1, 1979.

(3) Locomotives without corner stairway openings may not be used to perform any switching service after September 30, 1979 except passenger car switching service at passenger stations.

(b) *Definitions.* (1) *Locomotive used in switching service* means a locomotive regularly assigned to perform yard switching service.

(2) *Switching service* means the classification of cars according to commodity or destination; assembling of cars for train movements; changing the position of cars for purposes of loading, unloading, or weighing, placing of locomotives and cars for repair or storage; or moving of rail equipment in connection with work service that does not constitute a road movement. However, this term does not include movement of a train or part of a train within yard limits by the road locomotive and the placement of locomotives or cars in a train or their removal from a train by the road locomotive while en route to the train's destination.

(3) *Safety tread surface* means that portion of anti-skid surface of a switching step that actually is contacted by a shoe or boot.

(4) *Uncoupling mechanism* means the arrangement for operating the coupler lock lift, including the uncoupling lever and all other appurtenances that facilitate operation of the coupler.

(c) *Switching step*—(1) *Number.* Each locomotive used in switching service must have four (4) switching steps. (See Plate A)

(2) *Dimensions.* Each such switching step must have—

(i) On locomotives built after March 31, 1977, a minimum width of twenty-four (24) inches and a minimum depth

of twelve (12) inches, except when necessary to accommodate the turning arc of a six-wheel truck and its appurtenances, the inside edge of the switching step shall have a minimum width of seventeen (17) inches (See Plate B);

(ii) On locomotives built prior to April 1, 1977, a minimum width of eighteen (18) inches, and a minimum depth of eight (8) inches;

(iii) A backstop, solid or perforated, with minimum height of backstop of six (6) inches above the safety tread surface; and

(iv) A height of not more than nineteen (19) inches, preferably fifteen (15) inches, measured from top of rail to the safety tread surface.

(3) *Location.* Switching steps must be located on each side near each end of a locomotive used in switching service. The bottom step of the stairway at these locations may also serve as a switching step if it meets all of the requirements of this section.

(4) *Manner of application.* (i) Switching steps must be supported by a bracket at each end and fastened to the bracket by two bolts or rivets of at least one-half (½) inch diameter or by a weldment of at least twice the strength of a bolted attachment.

(ii) Vertical clearance must be unobstructed, except for minor intrusions created by mechanical fasteners or a small triangular gusset plate at the platform level walkway, and free for use for at least a distance of eighty-four (84) inches over a portion of the switching step that is not less than seven (7) inches deep by eighteen (18) inches wide on locomotives built prior to April 1, 1977, and of not less than seven (7) inches deep by twenty-four (24) inches wide on locomotives built after March 31, 1977.

(5) *Material.* (i) Steel or other material of equivalent or better strength and deflection characteristics, anti-skid, safety design, having at least fifty percent (50%) of the tread surface as open space must be used.

(ii) When the step material creates a second level safety tread surface, the maximum difference in surface levels may not exceed three-eighths (¾) of an inch.

(iii) The safety tread surface must extend to within one-half (½) inch of each edge of the step.

(6) *Visibility.* The outer edge of each switching step that is not illuminated must be painted a contrasting color. On locomotives built after March 31, 1977, switching steps shall be illuminated; on multiple-unit locomotive consists used in switching service, only the front switching steps of the leading unit and the rear switching steps of the trailing unit must be illuminated.

(d) *End footboards and pilot steps.* (1) Except for steam locomotives equipped as provided in §231.16, locomotives used in switching service built after March 31, 1975, may not be equipped with end footboards or pilot steps.

(2) Except for steam locomotives equipped as provided in §231.16, locomotives used in switching service built before April 1, 1975, may not be equipped with end footboards or pilot steps after September 30, 1978. Whenever end footboards or pilot steps are removed from a locomotive, the uncoupling mechanism and horizontal end handholds of the locomotive must be modified to comply with paragraphs (f) and (g) of this section.

(e) *Vertical handholds.* Each switching step must be provided with two (2) vertical handholds or handrails, one on each side of the switching step stairway.

(1) On locomotives built after March 31, 1977, each vertical handhold must—

(i) Be constructed of wrought iron, steel or other material of equivalent strength and durability that is at least one (1) inch diameter and be securely fastened to the locomotive with one-half (½) inch or larger bolts or rivets;

(ii) Begin not less than six (6) inches nor more than thirty-two (32) inches above the safety tread surface of the switching step; on units with high snowplows, each must begin not more than thirty-six (36) inches above the safety tread surface of the switching step;

(iii) Extend upward from switching step surface at least forty-eight (48) inches;

(iv) Be painted in a contrasting color to a height of at least forty-eight (48) inches above the safety tread surface of the switching step; and

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(v) Provide at least two and one-half (2½) inches of usable hand clearance throughout its entire length.

(2) On locomotives built before April 1, 1977, each vertical handhold must—

(i) Be constructed of wrought iron, steel or other material of equivalent strength and durability that is at least seven-eighths (7⁄8) inch in diameter and be securely fastened with one-half (½) inch or larger bolts or rivets;

(ii) Begin not less than five (5) inches nor more than thirty-two (32) inches above the safety tread surface; on units with high snowplows, each must begin not more than thirty-six (36) inches above the safety tread surface;

(iii) Extend upward from safety tread surface of the switching step at least forty-eight (48) inches;

(iv) Be painted in a contrasting color to a height of at least forty-eight (48) inches above the safety tread surface of the switching step; and

(v) Provide at least two and one-half (2½) inches usable hand clearance throughout its entire length.

(f) *Uncoupling mechanisms.* Each locomotive used in switching service must have means for operating the uncoupling mechanism safely from the switching step as well as from ground level. No part of the uncoupling mechanism may extend into the switching step or stairway opening or end platform area when the mechanism is in its normal position or when it is operated. (See Plate A)

(g) *Horizontal end handholds.* Each locomotive used in switching service must have four (4) horizontal end handholds.

(1) Each horizontal end handhold must—

(i) Be constructed of wrought iron, steel or other material of equivalent strength and durability that is at least five-eighths (5⁄8) inch in diameter and be securely fastened to the locomotive with one-half (½) inch or larger bolts or rivets;

(ii) Be located not less than thirty (30) inches nor more than fifty (50) inches above the top of rail with its outer end not more than 16 inches from the side of the locomotive; on units with a high snowplow that makes normal end handhold location inaccessible, end handhold shall be located on top of plow blade, with the center of the handhold not more than fifty-three (53) inches above the top of rail, and be in line with the slope of the plow blade;

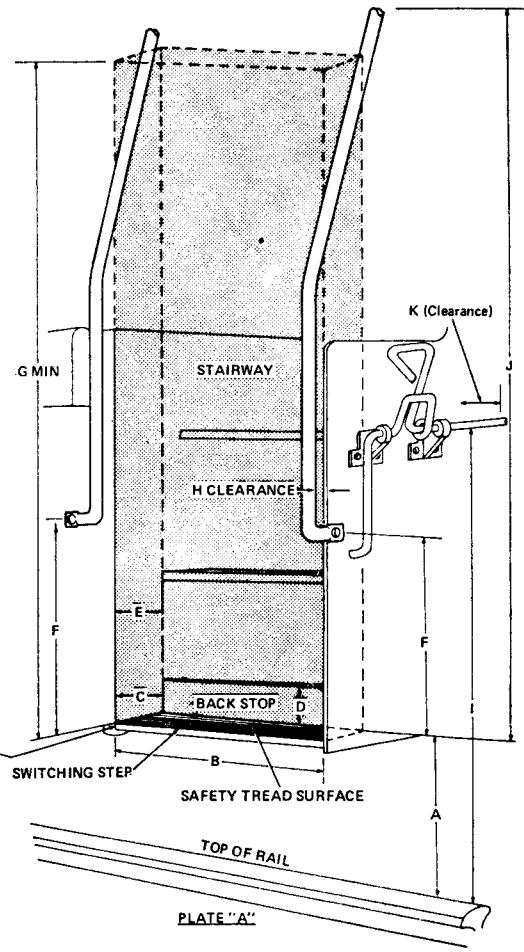
(iii) Be at least fourteen (14) inches long; and

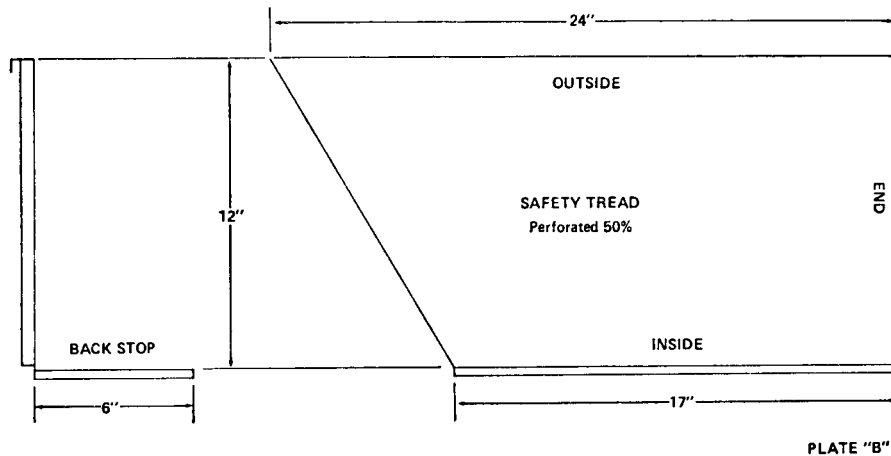
(iv) Provide at least two (2) inches, preferably two and one-half (2½) inches, usable hand clearance throughout its entire length.

(2) An uncoupling lever may also serve as a horizontal end handhold if it complies with the requirements of this paragraph. When an uncoupling lever also serves as the horizontal end handhold, it is considered to be securely fastened if its securement brackets are attached to the locomotive by one-half (½) inch or larger bolts or rivets and its movement between those brackets is limited to the rotation necessary for performance of the uncoupling function.

ITEM	DIMENSION	
	NEW UNITS	EXISTING UNITS
A. Height of switching step above rail	15" preferred 19" maximum	15" preferred 19" maximum
B. Minimum width of switching step (between stairway supports)	24"	18"
C. Minimum depth of switching step	12"	8"
D. Minimum height of backstop	6"	6"
E. Minimum distance from front edge of switching step to front edge of first step above	7"	7"
F. Distance above switching step for start of vertical handholds	6'-32"	5'-32"
Minimum Maximum EXCEPTION: Maximum for units with high snowplow	36"	36"
G. Clear height above switching step	84"	84"
H. Vertical handhold clearance	2 1/2" minimum	2 1/2" minimum
I. Height above top of rail for horizontal handhold or uncoupling lever if used as horizontal handhold	30"-50"	30"-50"
EXCEPTION: Maximum for units with high snowplow	53"	53"
J. Minimum height above switching step of vertical handhold	48"	48"
K. Horizontal handhold clearance or uncoupling lever clearance if used as horizontal handhold	2'-2 1/2"	2'-2 1/2"

- NOTES:**
- Switching steps must be supported by a bracket at each end and fastened to the bracket by two bolts or rivets of at least one-half (1/2) inch diameter or by a weldment of at least twice the strength of a bolted attachment.
 - The outer edge of each switching step that is not illuminated must be painted a contrasting color.
 - Vertical handholds must be painted in a contrasting color to a height of at least forty-eight (48) inches above the safety tread surface of the switching step.





SWITCHING STEP SHOWING INSIDE RELIEF FOR CLEARANCE OF SIX-WHEEL TRUCK

[41 FR 37783, Sept. 8, 1976]

§ 231.31 Drawbars for freight cars; standard height.

(a) Except on cars specified in paragraph (b) of this section—

(1) On standard gage (56½-inch gage) railroads, the maximum height of drawbars for freight cars (measured perpendicularly from the level of the tops of the rails to the centers of the drawbars) shall be 34½ inches, and the minimum height of drawbars for freight cars on such standard gage railroads (measured in the same manner) shall be 31½ inches.

(2) On 36-inch gage railroads, the maximum height of drawbars for freight cars (measured perpendicularly from the level of the tops of the rails to the centers of the drawbars) shall be 26 inches, and the minimum height of drawbars for freight cars on such 36-inch gage railroads (measured in the same manner) shall be 23 inches.

(3) On 24-inch gage railroads, the maximum height of drawbars for freight cars (measured perpendicularly from the level of the tops of the rails to the centers of the drawbars) shall be 17½ inches, and the minimum height of drawbars for freight cars on 24-inch gage railroads (measured in the same manner) shall be 14½ inches.

(4) On railroads operating on track with a gage other than those contained in paragraphs (a)(1) through (a)(3) of this section, the maximum and minimum height of drawbars for freight cars operating on those railroads shall be established upon written approval of FRA.

(b) This section shall not apply to a railroad all of whose track is less than 24 inches in gage.

[66 FR 4192, Jan. 17, 2001]