



Inspector(s): _____ Inspection Location: _____ Date: _____ Region: _____

Builder: _____ Car Initials & Number: _____ Car Type: _____ Cars to be Built: _____ Builder Job #: _____

Item	Number - Dimensions - Location - Manner of Application <small>(All brackets used solely to support safety appliances are mechanically fastened per MP&E TB 98-14)</small>	CFR Reference*	Notes
General	The specifications of §231.27 shall apply:		
Hand Brake	<p>One handbrake on end of car - ascertain the following:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 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; <input type="checkbox"/> Each box or other house car without roof hatches shall be equipped with an efficient vertical hand brake shall operate in harmony with power brake. <input type="checkbox"/> 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. <input type="checkbox"/> The brake wheel may be deep or shallow, of malleable iron, wrought iron, steel, or other material of equivalent strength. <input type="checkbox"/> Overall diameter of brake wheel nominally 22 inches. <input type="checkbox"/> 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. <input type="checkbox"/> All hand brake chains shall be not less than 9/16 inch BBB coil chain. ¹ <input type="checkbox"/> All handbrake rods shall be not less than 3/4 inch diameter. <input type="checkbox"/> The handbrake shall be so located that it can be safely operated from horizontal end platform while car is in motion. <input type="checkbox"/> The brake shaft shall be located on end of car, to the left of and not less than 17 nor more than 22 inches from center. <input type="checkbox"/> The brake shaft shall be located not less than 26 nor more than 40 inches above top of end-platform tread. <input type="checkbox"/> 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 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. <input type="checkbox"/> Outside edge of brake wheel shall be not less than four 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. <input type="checkbox"/> Handbrake housing shall be securely fastened to car. 	<p>231.27(a)</p> <p>231.27(a)(1)(i)</p> <p>231.27(a)(1)(ii)</p> <p>231.27(a)(2)(i)</p> <p>231.27(a)(2)(ii)</p> <p>231.27(a)(2)(iv)</p> <p>231.27(a)(2)(vi)</p> <p>231.27(a)(2)(vii)</p> <p>231.27(a)(3)(i)</p> <p>231.27(a)(3)(ii)</p> <p>231.27(a)(4)(i)</p> <p>231.27(a)(4)(ii)</p> <p>231.27(a)(4)(iii)</p>	

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Running Boards	<ul style="list-style-type: none"> <input type="checkbox"/> Same as specified below, except the end of longitudinal running board shall be not less than six 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. <input type="checkbox"/> One longitudinal running board. On outside-metal-roof cars two latitudinal extensions. <i>(Newer covered hoppers utilize two longitudinal running boards, one on each side of the roof hatches, rather than one down the middle of car.)</i> <input type="checkbox"/> Longitudinal running board shall be not less than 18 and preferably 20 inches in width. Latitudinal extensions shall be not less than 24 inches in width. <input type="checkbox"/> Full length of car, center of roof. On outside-metal-roof cars there shall be two latitudinal extensions from longitudinal running board to ladder locations, except on refrigerator cars where such latitudinal extensions cannot be applied on account of ice hatches. <input type="checkbox"/> Running board shall be continuous from end to end and not cut or hinged at any point: <i>Provided</i>, that the length and width of running board may be made up of a number of pieces securely fastened to saddle-blocks with screws, bolts, or rivets. <input type="checkbox"/> The ends of longitudinal running board shall be not less than 6 nor more than 10 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 endsill; and if more than 4 inches from edge of roof of car, shall be securely supported their full width by substantial metal braces. (For running board extensions, see MP&E TB 98-23) <input type="checkbox"/> Running board shall be securely fastened to car and be made of wood or of material which provides the same as or a greater degree of safety than wood of 1 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. 	231.28(a) 231.1(c)(1) 231.1(c)(2) 231.1(c)(3) 231.1(c)(4)(i) 231.1(c)(4)(ii) 231.1(c)(4)(iii)	

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End Platforms	<input type="checkbox"/> Two end platforms. <input type="checkbox"/> Width not less than eight inches; length, not less than 60 inches. ⁶ <input type="checkbox"/> Centered on each end of car. <input type="checkbox"/> Not more than eight inches above top of center sill. <input type="checkbox"/> Each end platform shall be securely supported by not less than three metal braces having a minimum cross sectional area of $\frac{3}{8} \times 1\frac{1}{2}$ inches or equivalent, which shall be securely fastened to body of car with not less than $\frac{1}{2}$ inch bolts or rivets. <input type="checkbox"/> Where conventional draft gear or cushioning device having longitudinal travel less than six inches is used the outside edge of each end platform shall be not less than 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 inches or more is used the outside edge of each end platform shall be not less than six 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. 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.	231.27(b)(1) 231.27(b)(2) 231.27(b)(3) 231.27(b)(4)(i) 231.27(b)(4)(ii)	
Sill Steps	<input type="checkbox"/> Four sill steps. <input type="checkbox"/> Minimum cross-sectional area $\frac{1}{2} \times 1\frac{1}{2}$ inches, or equivalent ³ of wrought iron, steel, or other material of equivalent strength. <input type="checkbox"/> Minimum length of tread, ten inches. <input type="checkbox"/> Minimum clear depth, eight inches. ⁴ <input type="checkbox"/> One near each end of each side of car, so that there shall be no more than 18 inches from end of car to center of tread of sill step. <input type="checkbox"/> Outside edge of tread of step shall be not more than four inches inside of face of side of car. <input type="checkbox"/> Tread shall be not more than 24, inches above the top of rail. <input type="checkbox"/> Sill steps exceeding 21 inches in depth shall have an additional tread. <input type="checkbox"/> Sill steps shall be securely fastened with not less than $\frac{1}{2}$ inch bolts with nuts outside (when possible) and riveted over, or with not less than $\frac{1}{2}$ inch rivets.	231.27(c)(1) 231.27(c)(2) 231.27(c)(3)(i) 231.27(c)(3)(ii) 231.27(c)(3)(iii) 231.27(c)(4)(i) 231.27(c)(4)(ii)	

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Ladders	<ul style="list-style-type: none"> <input type="checkbox"/> Two. <input type="checkbox"/> Minimum clear length of tread 16 inches. <input type="checkbox"/> Maximum spacing between treads 19 inches. <input type="checkbox"/> One on each end of car not more than eight inches from left-hand side. <input type="checkbox"/> Top ladder tread shall be located not less than 12 nor more than 18 inches from roof at eaves.⁵ <input type="checkbox"/> Spacing of side ladder treads shall be uniform within a limit of two inches from top ladder tread to bottom tread of ladder <input type="checkbox"/> Maximum distance from bottom tread of side ladder to top tread of sill step, 21 inches. <input type="checkbox"/> End ladder treads shall be spaced to coincide with treads of side ladders, a variation of two inches being allowed. Where construction of car will not permit the application of a tread of end ladder to coincide with bottom tread of side ladder, the bottom tread of end ladder must coincide with second tread from bottom of side ladder. <input type="checkbox"/> Iron or steel treads, minimum diameter $\frac{5}{8}$ of an inch.² <input type="checkbox"/> Minimum clearance of treads, two inches. <input type="checkbox"/> One on each side, not more than eight inches from right end of car; one on each end, not more than eight inches from left side of car; measured from inside edge of ladder stile or clearance of ladder treads to corner of car. <input type="checkbox"/> Metal ladders without stiles near corners of cars shall have foot guards or upward projections not less than two inches in height near inside end of bottom treads. <input type="checkbox"/> Stiles of ladders, projecting two or more inches from face of car, will serve as foot guards. <input type="checkbox"/> Ladders shall be securely fastened with not less than $\frac{1}{2}$ inch bolts with nuts outside (when possible) and riveted over, or with not less than $\frac{1}{2}$ inch rivets. 	231.28(b)(1) 231.28(b)(2)(i) 231.28(b)(2)(ii) 231.28(b)(3) 231.1(e)(2)(ii) 231.1(e)(2)(iii) 231.1(e)(2)(iv) 231.1(e)(2)(v) 231.1(e)(2)(vii) 231.1(e)(2)(viii) 231.1(e)(3)(i) 231.1(e)(4)(i) 231.1(e)(4)(ii) 231.1(e)(4)(iii)	
End Ladder Clearance	<ul style="list-style-type: none"> <input type="checkbox"/> No part of car above end sills within 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 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. 	231.27(d)	

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Roof Handholds	<input type="checkbox"/> Two, one over each ladder. <input type="checkbox"/> Minimum diameter, $\frac{5}{8}$ of an inch, wrought iron or steel. Minimum clear length, 16 inches. Minimum clearance, 2 inches. <input type="checkbox"/> One, on roof of car parallel to treads of each ladder, not less than eight nor more than 15 inches from edge of roof, except on refrigerator cars where ice hatches prevent, when location may be nearer edge of roof. <input type="checkbox"/> Roof handholds shall be securely fastened with not less than $\frac{1}{2}$ inch bolts with nuts outside (when possible) and riveted over, or with not less than $\frac{1}{2}$ inch rivets.	231.28(c)(1) 231.1(g)(2) 231.28(c)(3) 231.1(g)(4)	
Side Handholds	<input type="checkbox"/> 16 Side handholds. <input type="checkbox"/> Minimum diameter, $\frac{5}{8}$ of an inch. ² <input type="checkbox"/> Minimum clear length, 16 inches, wrought iron, steel, or other material of equivalent strength <input type="checkbox"/> Minimum clearance, two inches. <input type="checkbox"/> Horizontal; four near each end and on each side of car spaced not more than 19 inches apart. <input type="checkbox"/> Bottom handhold shall be located not more than 21 inches from top tread of sill step. <input type="checkbox"/> Top handhold (<i>applies only to top handhold</i>), shall coincide in height with top end handhold, a variation of two inches being allowed. <input type="checkbox"/> Spacing of side handholds shall be uniform within a limit of two inches from top handhold to bottom handhold. <input type="checkbox"/> Clearance of outer ends of handholds shall be not more than eight inches from end of car. <input type="checkbox"/> Side handholds shall be securely fastened with not less than $\frac{1}{2}$ inch bolts with nuts outside (when possible) and riveted over, or with not less than $\frac{1}{2}$ inch rivets. <input type="checkbox"/> Each bottom handhold shall have foot guard or upward projection not less than two inches in height near inside end.	231.27(e)(1) 231.27(e)(2) 231.27(e)(3) 231.27(e)(4)	

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End Handholds	<input type="checkbox"/> 16 End handholds. (Treads of end ladders are end handholds.) <input type="checkbox"/> Minimum diameter, $\frac{5}{8}$ of an inch. ² <input type="checkbox"/> Minimum clear length, 16 inches. <input type="checkbox"/> Minimum clearance, two inches. <input type="checkbox"/> Horizontal; four near each side on each end of car spaced not more than 19 inches apart. <input type="checkbox"/> Bottom handhold shall be located not more than 21 inches from top tread of sill step. <input type="checkbox"/> Top handhold shall coincide in height with end platform handhold, a variation of two inches being allowed. <input type="checkbox"/> Clearance of outer ends of handholds shall be not more than eight inches from side of car. <input type="checkbox"/> End handholds shall be securely fastened with not less than $\frac{1}{2}$ inch bolts with nuts outside (when possible) and riveted over, or with not less than $\frac{1}{2}$ inch rivets. <input type="checkbox"/> Each bottom handhold shall have foot guard or upward projection not less than two inches in height near inside end.	231.27(f)(1) 231.27(f)(2)(i) 231.27(f)(2)(ii) 231.27(f)(2)(iii) 231.27(f)(3) 231.27(f)(4)	
Horizontal End Platform Handholds	<input type="checkbox"/> Two horizontal end-platform handholds <input type="checkbox"/> Minimum diameter, $\frac{5}{8}$ of an inch, wrought iron, steel, or other material of equivalent strength. ² <input type="checkbox"/> Minimum clearance two inches. <input type="checkbox"/> Minimum clear length 60 inches. When security of attachment requires, an extra supporting leg may be applied near center of clear length. ⁶ <input type="checkbox"/> One on each end of car above end platform. <input type="checkbox"/> Outer legs shall be not more than six inches from inner legs of top end handholds. <input type="checkbox"/> Height above tread of end platform: Not less than 48 nor more than 60 inches. <input type="checkbox"/> End-platform handholds shall be securely fastened with not less than $\frac{1}{2}$ inch bolts with nuts outside (when possible) and riveted over, or with not less than $\frac{1}{2}$ inch rivets.	231.27(g)(1) 231.27(g)(2)(i) 231.27(g)(2)(ii) 231.27(g)(2)(iii) 231.27(g)(3) 231.27(g)(4)	

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Uncoupling Levers	<ul style="list-style-type: none"> <input type="checkbox"/> Two uncoupling levers <input type="checkbox"/> Handles of uncoupling levers, except those shown on Plate B or of similar designs, shall be not more than six inches from side of car. <i>(Plate B is the primary application you will see)</i> <input type="checkbox"/> Uncoupling levers of design shown on Plate B and of similar designs shall conform to the following prescribed limits; <ul style="list-style-type: none"> <input type="checkbox"/> Handles shall be not more than 12 inches from sides of car. <input type="checkbox"/> End of handles shall extend not less than four inches below bottom of end sill or shall be so constructed as to give a minimum clearance of two inches around handle. <input type="checkbox"/> Minimum drop of handles shall be 12 inches; maximum, 15 inches overall (see Plate B). <input type="checkbox"/> One on each end of car. When single lever is used, it shall be placed on left side of end of car. 	231.27(h)(1) 231.27(h)(2)(i) 231.27(h)(2)(ii) 231.27(h)(2)(ii)(a) 231.27.(h)(2)(ii)(c) 231.27(h)(3)	

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Existing box and other house cars with roof hatches - §231.28(e) <i>Note: Box and other house cars with 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, except:</i>			
Existing Box and Other House Cars with Roof Hatches	<ul style="list-style-type: none"> <input type="checkbox"/> Equipped as specified in §231.1, except 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. <input type="checkbox"/> One 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 inches below adjacent end handhold. <input type="checkbox"/> Reference §231.27 regarding compliance with end and side ladders requirements. 	231.28(e)(1) 231.28(e)(2)	
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: <ul style="list-style-type: none"> <input type="checkbox"/> That portion of each end of the car which is more than 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 inches high. <input type="checkbox"/> On each side sill near end corner there shall be painted or otherwise displayed a yellow rectangular area with a ¾ inch black border containing the words "this car excess height" in lettering not less than 1½ inches high. 	231.27(j) 231.27(j)(1) 231.27(j)(2)	

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Other CFR Sections	<input type="checkbox"/> Inspect all components to ensure compliance with the regulations. <input type="checkbox"/> Ensure all brake components are located so that an inspection can be safely conducted without an inspector placing himself in a precarious or unsafe position, (TB MP&E 98-32).		
Misc.	<input type="checkbox"/> Check for any sharp or protruding objects or areas on the equipment that may create a safety concern or personal injury. <input type="checkbox"/> Check for potential pinch points at all safety appliance arrangements. <input type="checkbox"/> Check to ensure that all brackets used solely to support a safety appliance are mechanically fastened. The use of weld on brackets is prohibited. <input type="checkbox"/> Check to ensure compliance with all applicable federal regulations . <input type="checkbox"/> Verify coupler height 31½ inch minimum, 34½ inch maximum.	231.31(a)(1)	
Digital Photos	<input type="checkbox"/> General Arrangement Photo Sheet ~ No Deviations Noted (6 photos minimum, A & B ends, each corner at 45 degree angle) <input type="checkbox"/> Deviation Photo Sheet ~ Deviations Noted: As many photos as necessary to fully depict, document and illustrate CFR deviations (e.g. 215, 229, 231 & 232)		

* The CFR reference sections noted throughout the check list refers to the *actual* regulatory requirement.

Footnotes:

- 1 TB MP&E 98-53 ...¾ inch alloy chain and ½ inch steel alloy chain currently being used by new car manufacturers exceed the specifications.
- 2 TB MP&E 98-18 Ladder treads, handholds of circular cross-section, 13/16 inch diameter and sill steps, 5/8 inch thick and 2 inches wide, when constructed of 6061-T6 aluminum alloy exceeds the current Federal Railroad Administration's requirements.
- 3 Equivalent must meet or exceed the cross sectional area the result of which may not be less than ¾ inch.
- 4 TB MP&E 98-13 Clear depth means a vertical space the width of, and above the sill step material or strap and should be clear and unobstructed for 8 inches
- 5 Variance allowed due to construction of car. Note exception on F6180.4.
- 6 TB MP&E 98-19 Due to the structure of pressure differential cars, FRA will not take exception to end platforms and end platform handholds less than 60 inches.

IMPORTANT NOTE: Equipment that is not adequately addressed in Part 231. For example, there are no ladder requirements in §§231.29 or 231.30. However, if additional safety appliances are used on *any type of equipment*, (i.e., §231.18 Cars of special construction), they must meet the dimension, location, and a manner of application requirements. This logic holds true regardless of the equipment inspected. When applying §231.6 during a sample-car inspection on an auto rack, you will encounter components not mentioned in that section such as ladders, stenciling, end ladder clearance, etc. These additional components must meet the appropriate requirements. If there is any doubt, consult your regional specialist.

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