



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
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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End Platforms	<ul style="list-style-type: none"> <input type="checkbox"/> Two end platforms <input type="checkbox"/> Width not less than eight inches; length, not less than 60 inches. <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 $\frac{3}{8}$ x $1\frac{1}{2}$ 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. 	<p>231.27(b)(1) 231.27(b)(2) 231.27(b)(3)</p> <p>231.27(b)(4)(i)</p> <p>231.27(b)(4)(ii)</p>	
Sill Steps	<ul style="list-style-type: none"> <input type="checkbox"/> Four sill steps <input type="checkbox"/> Minimum cross-sectional area $\frac{1}{2}$ x $1\frac{1}{2}$ ² inches, or equivalent . ³ <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. 	<p>231.27(c)(1) 231.27(c)(2)</p> <p>231.27(c)(3)(i)</p> <p>231.27(c)(3)(ii)</p> <p>231.27(c)(3)(iii) 231.27(c)(4)(i) 231.27(c)(4)(ii)</p>	
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. 	<p>231.27(d)</p>	

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Side Handholds	<ul style="list-style-type: none"> <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. <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)	
End Handholds	<ul style="list-style-type: none"> <input type="checkbox"/> 16 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)	

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Horizontal End Platform Handholds	<ul style="list-style-type: none"> <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. <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)	
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 (6) 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; <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 without roof hatches - §231.27(i) <i>Note: 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, except:</i>			
Modifications to: Existing box and other house cars without roof hatches	<ul style="list-style-type: none"> <input type="checkbox"/> 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. <input type="checkbox"/> One 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 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 handholds, the center handhold to be a minimum of 30 inches in clear length and the handhold to the right to be a minimum of 19 inches in clear length and to extend to within eight inches of the right side of the car, such handholds to be not more than 12 inches apart <input type="checkbox"/> With handbrake operated near roof of car: a brake step shall be provided as specified in §231.1 and lettering 1½ inches high shall be painted on a yellow background on side sill near "B" end of car with a 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 inches below adjacent end handhold. <input type="checkbox"/> Bullet citing §231.27(i)(1)(ii) above, shall not apply to cars equipped with end platforms and end platform handholds. 	231.27(i)(1)(i) 231.27(i)(1)(ii) 231.27(i)(1)(iii) 231.27(i)(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, <i>(TB MP&E 98-32)</i> .		
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.

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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