US Department of Transportation
Federal Railroad Administration

Sample Car Inspection Checklist For: S-2044 Appendix F-1
Safety Appliances for Open-Top Hopper Cars and High Side Gondola Cars

OMB No. 2130-0565
FRA F6180.161 I

Inspector(s):	Inspection Location:	Date:	Region:
Builder:	Car Initial and Number:	Car Type:	No. of cars to be Built:	Builder Job No.

ITEM	Number - Dimensions - Location - Manner of Application	Appendix Reference	Notes
Hand Brake	☐ Each car shall have at least one AAR-approved vertical-wheel hand brake that complies with MSRP Section E, Standard S-475 and that operates in harmony with the power brake equipment on the car. Total braking force applied to the brake shoes by the hand brake shall comply with the requirements of MSRP Section E, Standard S-401, but in any event shall be not less than that developed by 50 psi brake cylinder pressure. The hand brake wheel and chain drum of vertical-wheel hand brakes shall be arranged so that both will revolve when applying and gradually releasing the hand brake. The hand brake shall be provided with means to prevent application of the brake by turning the brake wheel in a counterclockwise direction.	Appendix F1, 2.1.1	
	☐ The hand brake wheel shall have a nominal diameter of 22 in. The brake wheel shall be of shallow configuration and shall be of steel or other material of equivalent strength.	Appendix F1, 2.1.2	
	☐ The hub of the hand brake wheel shall be 2 5/8 in. deep with a square tapered fit to the shaft. The taper on the brake wheel hub and shaft shall be 1 in. in 12 in. on each side, or 2 in. in 12 in. total, with the small end of the shaft opening 7/8 in. square. The brake wheel shall be secured to the brake shaft with an American National Standard 7/8—9 heavy hex nut and 3/16 in. × 1 1/2 in. cotter, or their equivalent.	Appendix F1, 2.1.3	
Location	☐ The hand brake shall be located so that it can be safely operated from the horizontal end platform while the car is in motion. The center of the hand brake shaft on cars equipped with one hand brake shall be located on the B end of the car to the left of, and not less than 17 in. nor more than 22 in. from, the centerline of the car and shall be not less than 28 in. nor more than 40 in. above the platform-support surface of the end-platform mounting brackets. The hand brakes on cars equipped with more than one hand brake shall be located as specified in paragraph 9.0 of the base standard.	Appendix F1, 2.2.1	
	☐ Clearance around the rim of the hand brake wheel shall be not less than 4 in. Clearance between the grip portion of the release lever, if used, throughout its full range of travel and any part of the car shall be not less than 2 1/2 in.	Appendix F1, 2.2.2	
	The outside edge of the hand brake wheel shall not extend more than 8 in. beyond the striker or end of the center sill, whichever extends farther, and not more than 8 in. beyond the outboard edge of the end platform. The outside edge of the hand brake wheel shall be not less than 1 in. and not more than 18 in. outboard of the inside surface of the horizontal end-platform handhold.	Appendix F1, 2.2.3	

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	☐	If the hand brake application is such that the requirements of paragraph 2.2.2 can be met only with hand brakes having short hand brake release levers or only with long release levers, but not both, the car shall be marked adjacent to the hand brake in 1 1/2 in. high letters “SHORT (LONG) RELEASE LEVER BRAKE ONLY”.	Appendix F1, 2.2.4	
Manner of Application	☐	The hand brake housing shall be securely fastened. The hand brake application, including bolt hole pattern, shall conform to MSRP Section E, Standard S-475.	Appendix F1, 2.3.1	
	☐	The hand brake chain shall conform to the requirements of S-475, but in any event shall have minimum working load of 5,875 lb and minimum proof test of 11,750 lb.	Appendix F1, 2.3.2	
	☐	Hand brake rods shall be not less than 3/4 in. diameter.	Appendix F1, 2.3.3	
Sill Steps	☐	There shall be four sill steps.	Appendix F1, 3.1	
Dimensions	☐	Sill steps shall conform to the requirements of Standard S-2042. Minimum usable length of tread shall be not less than 12 in.	Appendix F1, 3.2.1	
	☐	Sill steps shall be of steel not less than 1/2 in. thick and not less than 2 in. wide.	Appendix F1, 3.2.2	
	☐	Sill steps shall have sufficient treads such that the top tread is not more than 21 in. below the lowest adjacent side handhold. Sill step treads shall be spaced not more than 21 in. apart.	Appendix F1, 3.2.3	
	☐	The clear depth above the entire usable length of all sill step treads shall be not less than 8 in., and the clear width of the lowest sill step tread shall be not less than 6 in. for both loaded and empty conditions with the trucks rotated to simulate the maximum curvature specified for the uncoupled car.	Appendix F1, 3.2.4	
Location	☐	One sill step shall be applied near each end of each side of the car. The sill steps shall be located in the longitudinal direction such that the inside face of the outboard vertical leg of the sill step is not more than 2 in. inboard of the outboard clearance point of any side handhold. The inside face of the inboard vertical leg of the sill step shall be not less than 10 in. from the outboard clearance point of any side handhold.	Appendix F1, 3.3.1	
	☐	In the transverse direction, the outside edge of any sill step tread shall be not more than 6 in. inboard or outboard of the inside surface of the lowest adjacent side handhold. In addition, the outside edge of any sill step tread shall be not more than 4 in. inboard of any car structure below the clear length of the lowest adjacent side handhold.	Appendix F1, 3.3.2	

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	☐	The lowest tread shall be not more than 24 in., preferably not more than 22 in., above the top of rail.	Appendix F1, 3.3.3	
Manner of Application	☐	Sill steps shall be securely fastened.	Appendix F1, 3.4	
Side Handholds	☐	There shall be not less than 4 side handholds near each end on each side of the car. Additional side handholds may be required by paragraph 4.3.2	Appendix F1, 4.1	
Dimensions	☐	Handholds shall be of steel not less than 3/4 in. diameter and shall conform to the requirements of Standard S-224. Minimum clear length shall be 16 in. Minimum clearance shall be 2 in., preferably 2 1/2 in. The lowest side handhold at each corner shall have a foot guard or upward projection not less than 2 in. in height at its inboard end.	Appendix F1, 4.2	
Location	☐	The side handholds shall be oriented horizontally and spaced not more than 19 in. apart, with the lowest handhold located not more than 21 in. above the top tread of the sill step.	Appendix F1, 4.3.1	
	☐	The highest handhold at the B end of the car on the left side (BL corner) and at the A end of the car on the right side (AR corner) shall be not less than 2 1/2 in. below the underside of the side top chord and not more than 12 in. below the top of the side top chord. The 12 in. dimension shall be measured from the structural side top chord, including any appurtenances applied to the top of the top chord, in the area over the handholds. If the fourth handhold from the bottom is more than 12 in. below the top of the side top chord, additional side handholds shall be applied as required.	Appendix F1, 4.3.2	
	☐	Spacing between side handholds shall be uniform within a maximum variation of 2 in. At locations with more than four side handholds, the spacing of the highest handhold to the second highest handhold may vary by more than 2 in. from the spacing between other side handholds.	Appendix F1, 4.3.3	
	☐	Individual side handholds shall coincide in height with corresponding end handholds within a maximum variation of 2 in.	Appendix F1, 4.3.4	
	☐	The clearance points of the outboard end of the side handholds shall be not more than 10 in. inboard of, and no farther outboard than, the inside surface of the end handholds.	Appendix F1, 4.3.5	
Manner of Application	☐	Side handholds shall be securely fastened to the car.	Appendix F1, 4.4	

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ITEM		Number - Dimensions - Location - Manner of Application	Appendix Reference	Notes
End Handholds	☐	There shall be not less than 4 end handholds near each side on each end of the car. Additional end handholds may be required by paragraph 5.3.2.	Appendix F1, 5.1	
Dimensions	☐	Handholds shall be of steel not less than 3/4 in. diameter and shall conform to the requirements of Standard S-224. Minimum clear length shall be 16 in. Minimum clearance shall be 2 in., preferably 2 1/2 in. The lowest end handhold at each corner shall have a foot guard or upward projection not less than 2 in. in height at its inboard end.	Appendix F1, 5.2	
Location	☐	The end handholds shall be oriented horizontally and spaced not more than 19 in. apart with the lowest handhold located not more than 21 in. above the top tread of the sill step. On cars without pusher blocks applied to the corners of the car, the lowest end handhold shall be located not more than 45 in. above the top of rail. On cars with pusher blocks applied, the lowest end handhold may be higher than 45 in. above the top of rail, but the car must be equipped with end sill handholds if required by paragraph 6.1.1.	Appendix F1, 5.3.1	
	☐	The highest handhold at the BL and AR corners shall be not less than 2 1/2 in. below the underside of the end top chord and not more than 12 in. below the top of the end top chord. The 12 in. dimension shall be measured from the structural end top chord, including any appurtenances applied to the top of the top chord, in the area over the handholds. If the fourth handhold from the bottom is more than 12 in. below the top of the end top chord, additional end handholds shall be applied as required.	Appendix F1, 5.3.2	
	☐	Spacing between end handholds shall be uniform within a maximum variation of 2 in. At locations with more than four end handholds, the spacing of the highest handhold to the second highest handhold may vary by more than 2 in. from the spacing between other end handholds.	Appendix F1, 5.3.3	
	☐	There shall be an end handhold aligned with each side handhold. Individual end handholds shall coincide in height with corresponding side handholds within a maximum variation of 2 in.	Appendix F1, 5.3.4	
	☐	The clearance points of the outboard end of the end handholds shall be not more than 10 in. from the inside surface of the side handholds.	Appendix F1, 5.3.5	
	☐	The clearance points of the inboard ends of the end handholds shall be in vertical alignment in the transverse direction.	Appendix F1, 5.3.6	
	☐	On each end of the car, each end handhold shall be not more than 3 in. inboard of a plane extending from the lowest handhold to the highest handhold. Each handhold shall be not more than 3 1/2 in. inboard or outboard of the handholds immediately above and below it. No handhold shall be more than 3 in. outboard of the lowest handhold.	Appendix F1, 5.3.7	

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Manner of Application	☐	End handholds shall be securely fastened.	Appendix F1, 5.4	
End Sill Handholds	☐	When pusher blocks are applied to the corners of the car and the lowest end handhold is more than 45 in. above the top of rail, end sill handholds shall be applied.	Appendix F1, 6.1.1	
Dimensions	☐	When applied, there shall be four end sill handholds.	Appendix F1, 6.1.2	
	☐	Handholds shall be of steel not less than 3/4 in. diameter and shall conform to the requirements of Standard S-224. Minimum clear length shall be 16 in. Minimum clearance shall be 2 in., preferably 2 1/2 in.		
Location	☐	The end sill handholds shall be oriented horizontally, one near each side of each end of the car.	Appendix F1, 6.3.1	
	☐	The end sill handholds shall be located not more than 45 in. above the top of rail.	Appendix F1, 6.3.2	
	☐	The clearance points of the outboard end of the end sill handholds shall be not more than 16 in. from the inside surface of the side handholds.	Appendix F1, 6.3.3	
Manner of Application	☐	End sill handholds shall be securely fastened.	Appendix F1, 6.4	
End Platforms	☐	There shall be one end platform on each end of the car governed by this appendix.	Appendix F1, 7.1	
Dimensions	☐	End platforms shall conform to the requirements of Standard S-226. The platform material shall have uniform slip-resistant surfaces and shall be of construction to provide sufficient clear opening to permit elimination of accumulated snow and ice. The thickness from the mounting surface to the top of tread shall be not less than 3/8 in. and not more than 2 in. End platform width shall be not less than 8 in. The preferred length for end platforms is 60 in. Platforms shall not be shorter than 60 in. but may be longer if a longer length is necessary to comply with the requirements of paragraph 7.3.1.	Appendix F1, 7.2	
Location	☐	One end platform shall be applied on each end of the car between end handholds. The center of the outer mounting holes shall be not more than 7 3/4 in. from the clearance points of the nearest end handholds. The end platform shall be centered between the end handholds and, where practicable, at the center of the car end.	Appendix F1, 7.3.1	

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	☐	Where conventional draft gears or cushioning devices having less than 6 in. longitudinal coupler travel in buff are used, the outside edge of the end platforms shall extend no farther from the end of the car than the striker or end of the center sill. Where draft gears or cushioning devices having 6 in. or greater longitudinal coupler travel in buff are used, the outside edge of the end platforms shall extend not more than 6 in. beyond the striker or end of the center sill with the cushioning device (if used) at full buff.	Appendix F1, 7.3.2	
	☐	The platform-support surface of the mounting brackets shall be not more than 3 in. above nor more than 4 3/8 in. below the top surface of the lowest end handhold.	Appendix F1, 7.3.3	
	☐	Minimum vertical clearance above the end platform, measured from the end-platform mounting brackets, shall be not less than 7 in., except for the hand brake rod, hand brake chain, bell crank, and sheave wheel. No part of the car end or fixture on the car end above the end platform and less than 84 in. above the end-platform mounting brackets, other than the hand brake, hand brake rod, hand brake chain, bell crank, sheave wheel, horizontal end-platform handhold, and end-platform handhold support, shall extend closer to the outside edge of the end platforms than 8 in. When car construction does not permit 8 in. clearance to be provided, not less than 5 in. clearance shall be provided.	Appendix F1, 7.3.4	
Manner of Application	☐	Each end platform shall be supported by four mounting brackets. The mounting brackets shall be of steel not less than 3/8 in. thick nor less than 2 in. wide and shall conform to Standard S-226. The mounting brackets shall be securely fastened to the car body. The end platforms shall be securely fastened with two fasteners at each mounting bracket.	Appendix F1, 7.4	
Horizontal End-Platform Handholds	☐	There shall be one horizontal end-platform handhold on each end of the car governed by this appendix.	Appendix F1, 8.1	
Dimensions	☐	Handholds shall be of steel not less than 3/4 in. diameter and shall conform to the requirements of Standard S-224. Handholds with unsupported length greater than 36 in. shall be not less than 1 in. diameter. The unsupported length of 1 in. diameter handholds shall not be greater than 72 in. It is preferred that the clear length of the end-platform handholds be not less than 60 in. Minimum clearance shall be 2 in., preferably 2 1/2 in.	Appendix F1, 8.2	
Location	☐	One horizontal end-platform handhold shall be applied on each end of the car above the end platform and between end handholds. The transverse distance between the clearance points at the ends of the end-platform handholds and the clearance points at the inboard ends of the corresponding end handholds shall not exceed 6 in.	Appendix F1, 8.3.1	

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	☐	Horizontal end-platform handholds shall preferably coincide in height with the fourth end handholds from the bottom, but shall be within a maximum variation of 2 in. Height from the top of the end-platform handhold to the platform-support surface of end-platform mounting brackets shall be not less than 40 in., preferably not less than 50 in., nor more than 60 in.	Appendix F1, 8.3.2	
	☐	Horizontal end-platform handholds shall be located no farther than 6 in. in the longitudinal direction from the corresponding end handholds, measuring from the inside surface to inside surface. This requirement applies to the entire length of the end-platform handholds and end handholds.	Appendix F1, 8.3.3	
Manner of Application	☐	Horizontal end-platform handholds shall be securely fastened.	Appendix F1, 8.4	
Clearance at the End of the Car	☐	No part of the car above the end sill more than 30 in. from the longitudinal centerline of the car, except the hand brake wheel, hand brake shaft, bell crank, sheave wheel, end platform, or horizontal end handholds, shall extend beyond the striker or end of the center sill with the draft gear or cushioning device (if used) at full buff. No other part of the car end or fixtures on the end above the end sill and less than 84 in. above the end platform mounting brackets, other than the exceptions herein noted, shall extend beyond the outer face of the striker or end of the center sill.	Appendix F1, 9.0	
Uncoupling Devices	☐	There shall be a minimum of two uncoupling devices that conform to the requirements of the base standard.	Appendix F1, 10.0	
	☐	Uncoupling devices and their application shall conform to MSRP Section S, Part III, Standard S-129, S-131, S-133, or S-134; or Specification M-961.	S-2044 6.1 (Base Standard)	
	☐	One uncoupling device shall be applied at the left side of the B end of the car (BL corner) and one at the right side of the A end of the car (AR corner).	S-2044 6.2	
	☐	Under all operating conditions, the outside surface of the uncoupling device handles shall be not more than 12 in. closer to the car center than the inside surface of the adjacent side handholds.	S-2044 6.3	
	☐	There shall be not less than 2 in. clearance, preferably 2 ½ in., around the uncoupling device handles for a length not less than the lowest 4 in. of straight handles and not less than 4 in. in the grip portion of handles having clearly defined grip portions. The lower ends of the handles shall be not less than 12 in. nor more than 15 in. below the top surface of the uncoupling device at the device support and not less than 15 in. above the top of rail.	S-2044 6.4	

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	☐ Uncoupling device mounting brackets shall be securely fastened to the car with fasteners not less than 5/8 in. diameter.	S-2044 6.5	
Painting and Markings	☐ Cars with roofs 16 ft. 10 in. or more above the top of rail shall be marked as follows:	Appendix F1, 11.0	
	☐ That portion of each end of the car that is more than 15 ft. above the top of rail shall be white to contrast with the remainder of the end and shall bear the words "EXCESS HEIGHT CAR" in letters not less than 3 in. high. Cars whose ends are white below 15 ft. above the top of rail shall be yellow above 15 ft.	Appendix F1, 11.1	
	☐ On each side sill, or as close to the side sill as practicable, near each lower end corner there Shall be painted or otherwise displayed a yellow rectangular area with a ¾ in. border containing The words "THIS CAR EXCESSIVE HEIGHT" in lettering not less than 1 ½ in. high. The border shall be of a color that contrasts with yellow area and with the surrounding car side.	Appendix F1, 11.2	
Stenciling	☐ Car initial, numbers and built date stenciled on the car.	49 CFR Part 215.301	
Reflectorization.	☐ Reflectorization must meet all requirements. Attached Drawing	49 CFR Part 224	
Coupler Height	☐ Verify coupler height 31½ inch minimum, 34½ inch maximum.	49 CFR Part 231.31(a)(1)	
Power Brakes	☐ Except for cars equipped with nominal 12-inch stroke (8 ½ and 10-inch diameters) brake cylinders, all cars shall have a legible decal, stencil, or sticker affixed to the car or shall be equipped with a badge plate displaying the permissible brake cylinder piston travel range for the car at Class I brake tests and the length at which the piston travel renders the brake ineffective, if different from Class I brake test limits. The decal, stencil, sticker, or badge plate shall be located so that it may be easily read and understood by a person positioned safely beside the car.	49 CFR Part 232. 103	
	☐ All equipment ordered on or after August 1, 2002, or placed in service for the first time on or after April 1, 2004, shall have train brake systems designed so that an inspector can observe from a safe position either the piston travel, an accurate indicator which shows piston travel, or any other means by which the brake system is actuated. The design shall not require the inspector to place himself or herself on, under, or between components of the equipment to observe brake actuation or release.		
SCT	☐ A single car air brake test shall be performed on each new car prior to placing or using the car in revenue service.	49 CFR Part 232.305	

Miscellaneous	Check for any sharp or protruding objects or areas on the equipment that may create a safety concern or personal injury.
	Check for potential pinch points at all safety appliance arrangements.
Digital Photos	General Arrangement Photo Sheet ~ No Deviations Noted (six photos minimum, A & B ends, each corner at 45 degree angle)
	Deviation Photo Sheet ~ As many photos as necessary to fully depict, document and illustrate deviations of S-2044 Appendix F1 or CFR Parts(e.g. 215, 224 & 232)