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Title 49 —Transportation

Subtitle B —Other Regulations Relating to Transportation

Chapter II —Federal Railroad Administration, Department of Transportation

Part 229 —Railroad Locomotive Safety Standards

Subpart C —Safety Requirements

Cabs and Cab Equipment

Authority: 49 U.S.C. 20103, 20107, 20133, 20137–38, 20143, 20168, 20701–03, 21301–02, 21304, 28 U.S.C. 2461, note; and 49 CFR 1.89.

Source: 45 FR 21109, Mar. 31, 1980, unless otherwise noted.

§ 229.136 Locomotive image and audio recording devices.

(a) *Duty to equip and record.*

- (1) Effective October 12, 2027, each lead locomotive of a train used in commuter or intercity passenger service must be equipped with an image recording system to record images of activities ahead of the locomotive in the direction of travel (outward-facing image recording device), and of activities inside the cab of the locomotive (inward-facing image recording device).
 - (i) If the lead locomotive is equipped with an image recording system, the system must be turned on and recording whenever a train is in motion, at all train speeds.
 - (ii) If operating circumstances cause the controlling locomotive to be other than the lead locomotive, railroads must also record images of activities inside the cab of the controlling locomotive.
 - (iii) Both cabs of a dual-cab locomotive shall be equipped with inward- and outward-facing image recording systems. Image recordings for only a dual-cab locomotive's active cab and the leading end of the locomotive's movement are required to be made and retained.
- (2) Image recording systems installed after October 12, 2024, on new, remanufactured, or existing lead locomotives used in commuter or intercity passenger service shall meet the requirements of this section. Lead locomotives used in commuter or intercity passenger service must be equipped with an image recording system meeting the requirements of this section no later than October 12, 2027.
- (3) For lead locomotives in commuter or intercity passenger service, railroads must note the presence of any image or audio recording systems in the REMARKS section of Form FRA F 6180–49AP in the locomotive cab.
- (4) As required under paragraph (a)(1) or (2) of this section, the image recording system shall record at least the most recent 12 hours of operation of a lead locomotive in commuter or intercity passenger service.
- (5) Locomotive recording device data for each lead locomotive used in commuter or intercity passenger service shall be recorded on a memory module meeting the requirements for a certified crashworthy event recorder memory module described in appendix D to this part, or on an alternative, remote storage system that provides at least equivalent data protections and is approved by FRA under paragraph (g) of this section.

- (i) Paragraph (a)(5) of this section applies to locomotive image recording systems as required under paragraph (a)(1) or (2) of this section.
 - (ii) Audio recording systems installed after October 12, 2024, on new, remanufactured, or existing lead locomotives used in commuter or intercity passenger service shall meet the requirements of paragraph (a)(5) of this section. Audio recording systems installed on lead locomotives in commuter or intercity passenger service must meet the requirements of paragraph (a)(5) of this section no later than October 12, 2027.
- (b) **Outward-facing recording system requirements for lead locomotives in commuter or intercity passenger service.**
- (1) As required under paragraph (a)(1) or (2) of this section, the image recording system shall:
 - (i) Include an image recording device aimed parallel to the centerline of tangent track within the gauge on the front end of the locomotive;
 - (ii) Be able to distinguish the signal aspects displayed by wayside signals;
 - (iii) Record at a minimum frame rate of 15 frames per second (or its equivalent) and have sufficient resolution to record the position of switch points 50 feet in front of the locomotive;
 - (iv) Be able to capture images in daylight or with normal nighttime illumination from the headlight of the locomotive; and
 - (v) Include an accurate time and date stamp on image recordings.
 - (2) If a lead locomotive in commuter or intercity passenger service experiences a technical failure of its outward-facing image recording system, then the system shall be removed from service and handled in accordance with paragraph (i) of this section.
- (c) **Inward-facing image recording system requirements for lead locomotives in commuter or intercity passenger service.**
- (1) As required under paragraph (a)(1) or (2) of this section, the image recording system shall include an image recording device positioned to provide complete coverage of all areas of the controlling locomotive cab where a crewmember typically may be positioned, including complete coverage of the instruments and controls required to operate the controlling locomotive in normal use, and:
 - (i) Have sufficient resolution to record crewmember actions;
 - (ii) Record at a minimum frame rate of 5 frames per second;
 - (iii) Be capable of using ambient light in the cab, and when ambient light levels drop too low for normal operation, automatically switch to infrared or another operating mode that enables the recording sufficient clarity to comply with the requirements of this paragraph (c)(1); and
 - (iv) Include an accurate time and date stamp on image recordings.
 - (2) No image recordings may be made of any activities within a locomotive's sanitation compartment as defined in § 229.5, and no image recording device shall be installed in a location where the device can record activities within a sanitation compartment.
 - (3) If a lead locomotive in commuter or intercity passenger service experiences a technical failure of its inward-facing image recording system, the system shall be removed from service and handled in accordance with paragraph (i) of this section.

- (d) **Image and audio recording system protection requirements for lead locomotives in commuter or intercity passenger service.** Railroads must provide convenient wired or wireless connections to allow authorized railroad personnel to download audio or image recordings from any certified crashworthy event recorder memory module in a lead locomotive in commuter or intercity passenger service. The railroads must use electronic security measures, and apply appropriate cybersecurity measures, to prevent unauthorized access to, and download, deletion, or alteration of, the recording system or its recordings.
- (1) Paragraph (d) of this section applies to locomotive image recording systems as required under paragraph (a)(1) or (2) of this section.
 - (2) Audio recording systems installed after October 12, 2024, on new, remanufactured, or existing lead locomotives used in commuter or intercity passenger service shall meet the requirements of paragraph (d) of this section. Audio recording devices installed on lead locomotives in commuter or intercity passenger service must meet the requirements of paragraph (d) of this section no later than October 12, 2027.
- (e) **Inspection, testing, and maintenance for image recording systems on lead locomotives in commuter or intercity passenger service.** As required under paragraph (a)(1) or (2) of this section, the image recording system shall have self-monitoring features to assess whether the system is operating properly, including whether the system is powered on.
- (1) If a fault with the image recording system is detected, the locomotive may be used in the lead position only in accordance with paragraph (i) of this section.
 - (2) As required under paragraph (a)(1) or (2) of this section, at each annual test required under § 229.27, the railroad conducting the inspection shall take sample download(s) from the image recording system's crashworthy event recorder memory module, or an FRA-approved equivalent under paragraph (g) of this section, to confirm proper operation of the system, and, if necessary, repair the system to full operation.
- (f) **Handling of recordings –**
- (1) **Chain-of-custody procedure.** Each railroad with locomotives in commuter or intercity passenger service subject to this section shall adopt, maintain, and comply with a chain-of-custody procedure governing the handling and the release of the locomotive image recordings described in paragraphs (a) through (c) of this section and any locomotive audio recordings. The chain-of-custody procedure must specifically address the preservation and handling requirements for post-accident/incident recordings provided to FRA or other Federal agencies under paragraph (f)(2) of this section.
 - (2) **Accident/incident preservation.** If any locomotive in commuter or intercity passenger service equipped with an image or audio recording system is involved in an accident/incident that must be reported to FRA under part 225 of this chapter, the railroad that was using the locomotive at the time of the accident shall, to the extent possible, and to the extent consistent with the safety of life and property, preserve the data recorded by each such device for analysis by FRA or other Federal agencies. A railroad must either provide the image and/or audio data in a format readable by FRA or other Federal agencies; or make available to FRA or other Federal agencies any platform, software, media device, etc., that is required to play back the image and/or audio data. This preservation requirement shall expire one (1) year after the date of the accident, unless FRA or another Federal agency notifies the railroad in writing that it must preserve the recording longer. Railroads may extract and analyze such data for the purposes described in paragraph (f)(3) of this section, only if:

- (i) The original downloaded data file, or an unanalyzed exact copy of it, is retained in secure custody under the railroad's procedure adopted under paragraph (f)(1) of this section; and
- (ii) The original downloaded data file, or an unanalyzed exact copy of it, is not utilized for any other purpose, except by direction of FRA or another Federal agency.

(3) **Recording uses.** A railroad may use the image and audio recordings from a locomotive in commuter or intercity passenger service subject to this section to:

- (i) Investigate an accident/incident that is required to be reported to FRA under part 225 of this chapter;
- (ii) Investigate a violation of a Federal railroad safety law, regulation, or order, or a railroad's operating rules and procedures;
- (iii) Conduct an operational test under § 217.9 of this chapter;
- (iv) Monitor for unauthorized occupancy of a locomotive's cab or a control cab locomotive's operating compartment;
- (v) Investigate a violation of a criminal law;
- (vi) Assist Federal agencies in the investigation of a suspected or confirmed act of terrorism; or
- (vii) Perform inspection, testing, maintenance, or repair activities to ensure the proper installation and functioning of an image or audio recorder.

(g) **Locomotive image recording system approval process.** Each railroad with locomotives in commuter or intercity passenger service subject to this section must provide the FRA Associate Administrator for Railroad Safety and Chief Safety Officer with a description of the technical aspects of any locomotive image recording system installed to comply with this section. The required description must be submitted via electronic mail to the following email address: FRARRSMPE@dot.gov.

- (1) The description must include information specifically addressing the image recording system's:
 - (i) Minimum 12-hour continuous recording capability;
 - (ii) Crashworthiness; and
 - (iii) Post-accident accessibility of the system's recordings.
- (2) The railroad must submit the statement not less than 90 days before the installation of such image recording system, or, for existing systems, not more than 60 days after November 13, 2023.
- (3) The FRA Associate Administrator for Railroad Safety and Chief Safety Officer will review a railroad's submission and must approve any locomotive image recording system intended to comply with this section before the system can be installed or put into service. FRA may disapprove any locomotive image recording systems that do not meet the requirements of this section.

(h) **Relationship to other laws.** Nothing in this section is intended to alter the legal authority of law enforcement officials investigating potential violation(s) of State criminal law(s), and nothing in this section is intended to alter in any way the priority of investigations under 49 U.S.C. 1131 and 1134, or the authority of the Secretary of Transportation to investigate railroad accidents under 49 U.S.C. 5121, 5122, 20107, 20111, 20112, 20505, 20702, 20703, and 20902.

- (i) **Removal of device from service and handling for repair.** A railroad may remove from service an image recording device on a locomotive in commuter or intercity passenger service, and must remove the device from service if the railroad knows the device is not properly recording. When a railroad removes a locomotive image recording device from service, a qualified person shall record the date the device was removed from service on Form FRA F 6180–49AP, under the REMARKS section. Except as provided in this paragraph, a locomotive on which an image recording device has been taken out of service as provided in this paragraph may remain as the lead locomotive only until the next calendar-day inspection required under § 229.21. A locomotive with an inoperative image recording device alone is not deemed to be in an improper condition, unsafe to operate, or a non-complying locomotive under §§ 229.7 and 229.9. A locomotive in a long-distance intercity passenger train, as defined in § 238.5 of this chapter, with a non-operational image recording device may remain as the lead locomotive until arrival at its destination terminal or its nearest forward point of repair, whichever occurs first.
- (j) **Disabling or interfering with locomotive-mounted audio and video recording equipment.** Any individual who willfully disables or interferes with the intended functioning of locomotive-mounted image or audio recording system equipment on a passenger locomotive, or who tampers with or alters the data recorded by such equipment, is subject to a civil penalty and to disqualification from performing safety-sensitive functions on a railroad as provided in parts 209 and 218 of this chapter.
- (k) **As used in this section—Train means**
 - (1) A single locomotive;
 - (2) Multiple locomotives coupled together; or
 - (3) One or more locomotives coupled with one or more cars.
- (l) **Freight rescue locomotives.** The requirements of this section do not apply to a freight locomotive when used to haul a passenger train due to the failure of a passenger locomotive.

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