DEPARTMENT OF TRANSPORTATION

Federal Railroad Administration

49 CFR Parts 218, 221, and 232

[Docket No. FRA–2018–0093, Notice No. 1]

RIN 2130–AC67

Miscellaneous Amendments to Brake System Safety Standards and Codification of Waivers

AGENCY: Federal Railroad Administration (FRA), Department of Transportation (DOT).

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: FRA is proposing to revise its regulations governing brake inspections, tests, and equipment. The proposed changes include the incorporation of relief from various provisions provided in long-standing waivers related to single car air brake tests, end-of train devices, helper service, and brake maintenance. FRA is also proposing to extend the time that freight rail equipment can be ''off-air'' before requiring a new brake inspection. In addition, FRA is proposing various modifications to the existing brake related regulations for clarity and to remove outdated or unnecessary provisions. The proposed revisions would benefit railroads and the public by reducing unnecessary costs, creating consistency between U.S. and Canadian regulations, and incorporating the use of newer technologies demonstrated to maintain or increase safety. The proposed rule would reduce the overall regulatory burden on railroads.

DATES: Written comments must be received by March 16, 2020. Comments received after that date will be considered to the extent possible without incurring additional expenses or delays.

ADDRESSES: Comments: Comments related to Docket No. FRA–2018–0093 may be submitted by any of the following methods:

- *Website:* Comments should be filed at the Federal eRulemaking Portal, *http://www.regulations.gov.* Follow the online instructions for submitting comments.
- *Fax:* 202–493–2251.
- *Mail:* Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue SE, Room W12–140, Washington, DC 20590.
- *Hand Delivery:* Room W12–140 on the Ground level of the West Building, 1200 New Jersey Avenue SE, Washington, DC, between 9 a.m. and 5 p.m. ET, Monday through Friday, except Federal holidays.

Instructions: All submissions must include the agency name and docket number or Regulatory Identification Number (RIN) for this rulemaking. Note that all comments received will be posted without change to *http://www.regulations.gov* including any personal information. Please see the Privacy Act heading in the **SUPPLEMENTARY INFORMATION** section of this document for Privacy Act information related to any submitted comments or materials.

Docket: For access to the docket to read background documents or comments received, go to *http://www.regulations.gov* at any time or to Room W12–140 on the Ground level of the West Building, 1200 New Jersey Avenue SE, Washington, DC between 9 a.m. and 5 p.m. Monday through Friday, except federal holidays.

FOR FURTHER INFORMATION CONTACT: Steven Zuiderveen, Senior Safety Specialist, Motive & Power Equipment Division, Office of Technical Oversight, Federal Railroad Administration, RRS–14, West Building 3rd Floor, Room W35–204, 1200 New Jersey Avenue SE, Washington, DC 20590 (telephone: 202–493–6337); Jason Schlosberg, Senior Attorney, Office of Chief Counsel, RCC–10, West Building 3rd Floor, Room W31–207, 1200 New Jersey Avenue SE, Washington, DC 20590 (telephone: 202–493–6032).

SUPPLEMENTARY INFORMATION:

Table of Contents for Supplementary Information

I. Executive Summary

A. Purpose of the Regulatory Action

In December 2017, AAR filed a petition for waiver from the rule that requires a Class I brake test prior to operation if a train is off-air for a period of more than four hours, contending it is too restrictive. *See* Docket No. FRA–2017–0130. The Safety Board denied the waiver petition, finding that the relief requested was more appropriately addressed through the rulemaking process and that there was a lack of supporting data submitted with the waiver request. Subsequently, in a letter dated July 12, 2018—included in the public docket to this rulemaking proceeding—AAR submitted a revised petition for rulemaking including substantially more supporting data than the waiver request it submitted in December 2017.

This rulemaking responds to AAR's petition, proposes codification of existing waivers related to brake systems, and makes technical amendments to reduce regulatory burdens while maintaining or improving safety.[1] This rulemaking is a direct result of FRA's effort to periodically review its regulations and propose amendments to the regulations to streamline and update them to reflect technological advances and lessons learned through feedback from all stakeholders.

B. Summary of the Major Provisions of the Regulatory Action

When considering new and novel transportation technologies, industry stakeholders have often used FRA's waiver process, under subpart C to 49 CFR part 211, when existing rules do not adequately address or apply to the use of the technology. FRA has identified various waivers that warrant consideration for regulatory codification. In particular, FRA is proposing to incorporate into the regulations various long-standing waivers providing conditional exceptions to existing rules concerning air brake testing, end-of-train (EOT) devices, and helper service. FRA is also proposing to extend the time that freight rail equipment can be ''off-air'' before requiring a new brake inspection and is proposing various modifications to the existing brake related regulations for

[1] FRA notes that AAR submitted a separate rulemaking petition in March 2019. That petition proposes amendments to part 232 related to the industry's development of a rail car electronic air brake slip system. FRA will address the recommendations in that petition in a separate rulemaking proceeding.

clarity and to remove outdated or unnecessary provisions.

C. Costs and Benefits of the Proposed Regulatory Action

FRA analyzed the economic impacts of this NPRM over a 10-year period, and estimated its cost savings, costs, and benefits. The total cost savings are $502.2 million (using a 7% discount rate), and $593.7 million (using a 3% discount rate). The annualized cost savings are $71.5 million (using a 7% discount rate) and $69.6 million (using a 3% discount rate). The cost savings of this proposed rule are displayed in the table below.

COST SAVINGS OVER 10-YEAR PERIOD

[Values in millions]

Section	Present value 7%	Present value 3%	Annualized 7%	Annualized 3%
Helper Link	$3.9	$4.5	$0.6	$0.5
D–22 Brake Valve	0.5	0.6	0.07	0.07
26–C Brake Valve	0.2	0.3	0.04	0.03
24-Hour Off-air	325.6	386.2	46.4	45.3
90 CFM	1.8	2.1	0.3	0.2
Single Car Air Brake Tests (SCT) 24 month	150.7	176.1	21.5	20.6
SCT 48 month	19.5	23.8	2.8	2.8
Waiver Cost Savings	0.1	0.1	0.01	0.01
Total	502.2	593.7	71.5	69.6

FRA estimates this proposed rule would not impose any costs on the industry. This NPRM generally increases flexibility for the regulated entities by codifying waivers. It does not impose any new substantive requirements. This rule will not negatively impact safety in any aspect of railroad operations and FRA does not expect any increase in end-of-train device or brake failures as a result of this rule. As noted in the Regulatory Impact Analysis (RIA) accompanying this rule, overall safety may by improved due to railroad employees experiencing less risk of common injuries such as slips, trips, and falls by having to perform fewer physical inspections, which would produce positive safety benefits, though these have not been quantified.

The quantified net cost savings of this proposed rule are equal to the total cost savings. The present value of net cost savings are estimated to be $502.2 million (7% discount rate) and $593.7 million (3% discount rate). The annualized net cost savings are estimated to be $71.5 million (7% discount rate) and $69.6 million (3% discount rate).

II. Background

A. Existing Regulations

FRA regulations require the air brake systems of trains, and the air brakes of individual freight cars, to be inspected and tested in certain circumstances. The regulations provide for five primary types of brake system inspections: Class I (initial terminal inspection), Class IA (1,000-mile inspection), Class II (intermediate inspection), Class III (trainline continuity inspection), and an SCT.

A Class I air brake test, also referred to as an initial terminal inspection, is a comprehensive inspection of the brake equipment on each car in an assembled train and is required to be performed at the location where a train is originally assembled, when the consist is changed in certain ways (by adding or removing cars), and when a train is off-air for more than four hours. Class I brake tests are intended to ensure that a train is in proper working condition and capable of traveling to its destination with minimal problems en route. A Class I brake test requires the performance of a leakage test and in-depth inspection of the brake equipment (on both sides of the freight car) to ensure that each car's brake system is properly secure, does not bind or foul, and applies and releases in response to a specified brake pipe pressure signal. Piston travel must also be inspected and adjusted to a specified length if found not to be within a certain range of movement.

A Class IA brake test is required every 1,000 miles. Although it is less detailed than a Class I inspection, a Class IA brake test includes all the same elements of a Class I test, but with less stringent piston travel requirements. The most restrictive car or block of cars in a train determines the location where Class IA tests must be performed. For example, if a train travels 500 miles from its point of origination to a location where it picks up a block of cars that has travelled 800 miles since its last Class I brake test, and the crew does not perform a Class I brake test when adding the cars, then the entire train must receive a Class IA brake test within 200 miles even though that location is only 700 miles from the train's origination.

Class II brake tests, also referred to as intermediate inspections, are less detailed inspections used for cars that do not have a compliant Class I inspection record that are picked up by a train. The test includes a test for excessive brake pipe leakage, charging the air brakes to within 15 psi of working pressure, making a 20-psi reduction in the brake pipe to actuate the brake, restoration of pressure to working psi, and confirmation that all brakes release and full brake pipe pressure has been restored to the rear of the train. Cars that receive a Class II brake test are required to receive a full Class I brake test at the next forward location where it can be performed.

A Class III brake test, also known as a trainline continuity inspection, must be performed any time the brake pipe is opened on an operating train. The test includes charging the air brakes to working pressure (no less than 60 psi at rear of train), making a 20-psi reduction in the brake pipe to actuate the brake on the rear car of the train, releasing the brake, and ensuring that pressure at the rear of the train is restored.

In addition to the types of air brake tests noted above, the regulations require the brakes of individual cars to be periodically maintained and tested in certain circumstances. This test is known as an SCT and is used to validate individual air brake effectiveness. An SCT is required: At least every 8 years for new or rebuilt freight cars, at least every 5 years for all other freight cars, and any time a freight car is on a shop

or repair track, if the car has not had a SCT in the previous 12 months.

For a substantial summary, history, and analysis of the regulations affecting Class I, Class IA, Class II, and Class III brake tests, single car air brake tests, and the operation and testing of end-of-train devices, please visit the following **Federal Register** publications: 66 FR 4104, Jan. 17, 2001; 66 FR 39683, Aug. 1, 2001; and 67 FR 17555, Apr. 10, 2002.

B. FRA Waiver Authority and Process

For years, FRA has in various instances exercised its delegated authority to waive compliance with its regulations. *See* 49 U.S.C. 20103 (''The Secretary [of Transportation] may waive compliance with any part of a regulation prescribed or order issued under this chapter if the waiver is in the public interest and consistent with railroad safety.''); *see also* 49 CFR 1.89(a). FRA implemented this authority by issuing the rules under subpart C to 49 CFR part 211, providing a process and requirements for receiving and responding to waiver petitions. Each properly filed petition for a permanent or temporary waiver of a safety rule, regulation, or standard is referred to the FRA Railroad Safety Board (Safety Board) for decision. *See* 49 CFR 211.41(a). The Safety Board's decision is typically rendered after a notice is published in the **Federal Register** and an opportunity for public comment is provided. *See* 49 CFR 211.41(b). If a waiver petition is granted, the Safety Board may impose conditions on the grant of relief to ensure the decision is in the public interest and consistent with railroad safety.

Activity under a waiver of regulatory compliance may generate sufficient data and experience to support an expansion of its scope, applicability, and duration. For instance, in many cases, FRA has expanded the scope of certain waivers or issued the same or similar waivers to additional applicants. FRA has also extended various waivers' expiration dates. A waiver's success and its continued expansion warrant consideration of regulatory codification. FRA believes that codifying a waiver, and thereby making its exemptions and requirements universally applicable, results in industry cost-savings larger than from the waiver alone.

C. Current Review of Waivers

FRA is considering codifying waivers of compliance from rules affecting motive power and equipment (MP&E), including the aforementioned brake inspection requirements. More specifically, FRA is proposing changes to the regulations affecting: The use of EOT devices and Helper Link devices or similar technologies; higher air-flow on distributed powered (DP) trains; and the performance of Class I air brake tests and single car air brake tests (SCT). FRA is also proposing technical corrections to existing regulations.

The waiver subject matters considered for codification are more specifically identified below. FRA requests comment on all aspects of its proposals to incorporate the identified waivers into the regulations. FRA has attempted to capture and identify the dockets for all substantially similar waivers affected by this rulemaking. For purposes of defining the scope of this rulemaking, FRA has identified each of those waivers by docket number. However, FRA recognizes that there may be some substantially similar waivers not identified in this NPRM, but still affected by this rulemaking. All affected waivers, whether specifically referenced in this NPRM or not, remain in force for the time being, and FRA does not intend to terminate any waivers upon the effective date of a final rule even if FRA incorporates the requirements of a waiver into a final rule. It is possible that there are exceptions or conditions in some existing waivers that are not specifically codified in the final rule. FRA believes that terminating waivers immediately upon the effective date of a final rule may unnecessarily complicate matters, especially considering many of the waivers will simply expire soon thereafter. In the event a regulated entity wishes to continue a waiver's provision not captured by the final rule in this proceeding beyond the expiration date of that waiver, that entity could petition the Safety Board for an extension of that provision. FRA seeks comment on this approach.

D. Identified Waivers

For the public's convenience, below is a list of waiver petition dockets, organized by subject matter, which FRA is proposing to codify into its regulations. As noted, this list is not necessarily all-inclusive. The public docket for each listed waiver may be accessed at *www.regulations.gov.*

Air Flow Method

- Permit 90 cubic feet per minute (CFM) air flow and Railroad Operating Rules (49 CFR 232.205(c)(1)(ii))
  - BNSF Railway (BNSF), Canadian National Railway (CN), et. al., Docket No. FRA–2012–0130

End-of-Train (EOT) Device

- Power Source (49 CFR 232.403(g)(3))
  - Wabtec Corporation (Wabtec), Docket No. FRA–2001–9270
  - Quantum Engineering, Inc (Quantum) (n.k.a. Siemens Industry, Inc. (Siemens)), Docket No. FRA–2006–25794
- Calibration (49 CFR 232.409(d))
  - Wabtec, Docket No. FRA–2004–18895
  - Ritron, Inc. (Ritron), Docket No. FRA–2009–0015
  - DPS Electronics, Inc. (DPS), Docket No. FRA–2012–0096
  - Siemens, Docket No. FRA–2015–0044
- Helper Service (49 CFR 232.219(c))
  - BNSF, Docket No. FRA–2006–26435
  - Montana Rail Link (MRL), Docket No. FRA–2014–0013
- Marker Lamp Height (49 CFR 221.13(d))
  - DPS, Docket No. FRA–2015–0023
  - Siemens, Docket No. FRA–2017–0093
- Utility Person and Battery Changes (49 CFR 218.22(c)(5))
  - BNSF, Docket No. FRA–2001–10660
  - Canadian Pacific Railway (CP), Docket No. FRA–2004–17989

Single Car Test

- Update Incorporation by Reference to Association of American Railroads (AAR) Standard S–486–18 (49 CFR 232.305(a))
  - AAR, Docket No. FRA–2018–0011
- Add Incorporation by Reference for AAR Standard S–4027–18 (49 CFR 232.305(a))
  - BNSF and Union Pacific Railroad (UP), Docket No. FRA–2013–0030

Automated Single Car Test

- 24-Month Testing, Automated (AAR Standard S–4027) (49 CFR 232.305(b)(2))
  - BNSF and UP, Docket No. FRA–2013–0030
- 48-Month Testing, Four-Pressure Test (AAR Standard S–4027) (49 CFR 232.305(b)(2))
  - BNSF and UP, Docket No. FRA–2013–0030

Clarifying Appendix B (Potentially Recodifying as Subpart H)

- Change AAR Standard S–045 to AAR Standard S–4045–13 (appx B, II, § 232.17(b)(2))
  - AAR, Docket No. FRA–2013–0063

E. Incorporating by Reference New and Updated Standards Under 1 CFR 51.5

As required by 1 CFR 51.5, FRA has summarized the standards it is proposing to incorporate by reference in the section-by-section analysis in this preamble. The AAR standards

summarized herein, and listed in the table directly below for convenience, are reasonably available to all interested parties for inspection. Copies can be obtained from the Association of American Railroads, 425 Third Street SW, Washington, DC 20024, telephone: (202) 639–2345, email: *publications@aar.com,* website: *https://aarpublications.com.* They are also available for inspection at the Federal Railroad Administration, Docket Clerk, 1200 New Jersey Avenue SE, Washington, DC 20590.

AAR STANDARDS INCORPORATED BY REFERENCE IN 49 CFR PART 232

Identification No.	Title	Year or edition	Section affected in 49 CFR
S–469–01	Performance Specification for Freight Brakes	2006	§ 232.103(l).
S–486–18	Code of Air Brake System Tests for Freight Equipment	2018	§ 232.305(a).
S–4027–18 ..	Automated Single-Car Test Equipment, Conventional Brake Equipment-Design and Performance Requirements.	2018	§ 232.305(a).
S–4045–13 ..	Passenger Equipment Maintenance Requirements	2013	§ 232.17(b)(2) in section I of Appendix B, part 232. (proposed § 232.717(b)(2)).
S–4200	Electronically Controlled Pneumatic (ECP) Cable-Based Brake Systems—Performance Requirements.	2014	§ 232.603.
S–4210	ECP Cable-Based Brake System Cable, Connectors, and Junction Boxes—Performance Specifications.	2014	§ 232.603.
S–4230	Intratrain Communication (ITC) Specification for Cable-Based Freight Train Control System.	2014	§ 232.603.
S–4250	Performance Requirements for ITC Controlled Cable-Based Distributed Power Systems.	2014	§ 232.603.
S–4260	ECP Brake and Wire Distributed Power Interoperability Test Procedures	2008	§ 232.603.
N/A	2020 Field Manual of the AAR Interchange Rules	2020	§ 232.717.

The rule text already incorporates by reference the latest versions of the following AAR standards, so no updates are currently proposed: S–4220, ECP Cable-Based Brake DC Power Supply—Performance Specification (2002); S–4240, ECP Brake Equipment—Approval Procedure (2007); and S–4270, ECP Brake System Configuration Management (2008).

F. Railroad Safety Advisory Committee (RSAC) Advice and Input

FRA received substantial advice and feedback from the RSAC on the contents of this rule. FRA first established the RSAC in March 1996 under Section 10(a)(2) of the Federal Advisory Committee Act (Pub. L. 92–463) to provide a forum for stakeholder groups to provide advice and recommendations to the FRA on railroad safety matters. In April 1996, the RSAC formed the Tourist and Historic Railroads and Private Passenger Car Working Group (THRWG). Since that time, the THRWG has considered numerous issues affecting tourist and historic rail operations and in August 2013, the THRWG accepted Task No. 13–01 to consider the applicability of FRA's regulations to historical or antiquated equipment that is used only for excursion, educational, recreational, or private transportation purposes. The THRWG met in Washington, DC on April 9–10, 2014, and reviewed, among other things, the safety glazing standards (49 CFR part 223) regarding the treatment of certain equipment; regulatory treatment under the freight car safety standards (49 CFR part 215) of non-commercial freight cars over 50 years old; and the scope and application of appendix B of 49 CFR part 232 (freight power brake standards). The THRWG also identified other issues involving FRA's regulatory treatment of tourist, scenic, historic, excursion, educational or recreational rail operations or private passenger rail car operations and equipment in other chapters of title 49, which FRA anticipates will be addressed in subsequent rulemakings. On December 4, 2014, the full RSAC accepted the THRWG's report. *See* RSAC Meeting Minutes, p. 12, *https://rsac.fra.dot.gov/radcms.rsac/File/DownloadFile?id=44.* The updates to part 232, appendix B (proposed Subpart H—Tourist, Scenic, Historic, and Excursion Operations Braking Systems) of this NPRM are based on the THRWG's report.

III. Section-by-Section Analysis

Unless otherwise noted, all section references below refer to sections in title 49 of the Code of Federal Regulations (CFR). FRA seeks comments on all proposals in this NPRM.

Proposed Amendments to 49 CFR Part 218

Section 218.22 Utility Employee

As stated in the 1993 rule initialing adopting § 218.22, the intent of this section is to define the circumstances under which a utility employee may be permitted to function as a member of a train or yard crew without the need for establishing blue signal protection. *See* 58 FR 43293, 43290, Aug. 16, 1993. The Blue Signal regulations are found in Subpart B of part 218 (§§ 218.21–218.41). Despite this stated intent, existing paragraph (c) of § 218.22 provides that ''under certain conditions . . . a utility employee [may] be assigned to and serve as a member of a train or yard crew without the protection otherwise required by *subpart D* to 49 CFR part 218.'' (Emphasis added). Subpart D of part 218 (§§ 218.51–218.61) contains FRA's regulations prohibiting tampering with safety devices and, thus, the reference makes no sense. In addition, paragraphs (c)(5) and (h) of § 218.22 specify conditions under which certain provisions of subpart B (*e.g.,* §§ 218.23–218.30) must be complied with when a utility employee is performing certain functions normally executed by a train crew. Accordingly, FRA is proposing to amend the incorrect reference to ''Subpart D'' in paragraph (c) to ''Subpart B,'' as this reference is clearly a typographical error.

In addition, FRA proposes amending the list of functions provided in paragraph (c)(5) that do not require a utility employee to establish blue signal protection to include battery change-out on rear-end marking devices or end-of-train devices if the change-out is accomplished without the use of tools.

This relief has already been provided to BNSF and CP. *See* Docket No. FRA–2001–10660; Docket No. FRA–2004–

17989. In their waiver petitions, BNSF and CP stated that potential safety benefits would likely include an estimated 80% reduction in safety-sensitive task completion time and significantly lighter loads for service and utility employees to lift and handle. For instance, when changing a battery, employees would no longer have to unhook the air hose from the device, remove the device from the coupler, carry it to a safe location and set it on the ground to change the battery, then pick up the device, walk back to the end of the train and reinstall the device. Instead, the employee would simply open a latch, slide out and replace the battery, and refasten the latch.

FRA granted those waiver petitions over a decade ago and each railroad's record of operations under those waivers demonstrates that the relief provided is safe. Accordingly, FRA believes codifying these existing waivers would improve efficiency and is consistent with railroad safety. FRA seeks comments on this proposal.

FRA also seeks comment on the use of the term ''change out'' or ''change'' in paragraph (c). FRA understands that to ''change out'' batteries means to swap or replace them. This is certainly what FRA intended when it granted the associated waivers. However, when codifying this relief, FRA does not want to prohibit or otherwise suppress future innovation. For instance, FRA believes removable or non-removable rechargeable batteries or other similar technology could one day suit the purpose of this proposal. Accordingly, FRA proposes to use the broader term ''change'' (as opposed to change out) in the proposed revision to paragraph (c).

In proposing these changes to paragraph (c), FRA considered whether other similar tasks could be reasonably excluded from the Blue Signal requirements. FRA identified no such tasks. FRA also considered the feasibility of establishing a performance standard (*e.g.,* based on time, complexity of task, or some other measure). After consideration of these issues, FRA is not proposing any additional changes to paragraph (c), but FRA invites commenters to identify other tasks that may justify being added to the list of exceptions from the blue signal requirements in the paragraph. Further, FRA seeks comment on the utility and feasibility of establishing a performance-based requirement in paragraph (c), as an alternative to listing specific tasks excluded from the Blue Signal requirements.

Proposed Amendments to 49 CFR Part 221

Section 221.13 Marking Device Display

Section 221.13 includes EOT marking device display requirements. Paragraph (d) requires each marking device's centroid to be located at a minimum of 48 inches above the top of the rail. In 2015 and 2017, DPS, and Siemens Industry Inc. (''Siemens''), respectively, filed similar waiver petitions requesting that the marker height measurement be reduced to 41 and 42 inches, respectively. *See* Docket No. FRA–2015–0023; Docket No. FRA–2017–0093. In their petitions, both DPS and Siemens noted that newer designs of their marker lights weighed less than previous designs and were designed to be mounted lower than 48 inches from the top of the rail. DPS and Siemens asserted that the smaller dimensions and weight of the marker lights would reduce the risk of injury to personnel handling the devices. Moreover, for marker lights mounted at 36, 42, and 48 inches above the top of the rail, DPS and Siemens provided supporting field test video data showing no discernable visibility difference up to one mile away. In reviewing the petitions and data, the Safety Board agreed that changing the marker light height by several inches would not result in a significant difference in visibility, especially since EOT marker lights are typically viewed from distances of a half-mile or greater. FRA seeks comment on the height standards proposed in this section.

In addition to considering visibility over distances, FRA also seeks comment on marker device visibility from varying angles. Viewing angles may vary minutely due to natural variation in eye height from one human observer to another. In addition, when considering DPS's and Siemen's petitions, FRA performed a simplified trigonometric analysis and determined that only a minimal number of negative scenarios would result from cases in which a marker light would be mounted at 40 inches. *See* Docket No. FRA–2015–0023; Docket No. FRA–2017–0093.

FRA granted DPS's and Siemen's waiver petitions based on evidence showing that the difference in heights would not affect visibility of the marker lights. Since granting the petitions, no accidents attributed to a lowered marker lamp height permitted under these waivers have been reported through the FRA accident reporting system. Accordingly, FRA proposes codifying the waiver's exemptions and conditions. FRA seeks comments and any information gleaned from railroad experience relevant to this proposal.

FRA believes that this change would allow the use of lighter weight EOT devices, which will likely result in a lower risk of injury and improved safety. Since the coupler is usually 38″ from the ground, and the lamp height is currently required to be at least 48″ from the ground, to make up the space, manufacturers created a 10″ tall box, which doubles as heavy battery storage. With the introduction of air turbine electricity to replace the need for batteries and a consideration of reducing the 48″ height requirement, the size and weight of this equipment could permissibly be reduced, resulting in ergonomic benefits such as less awkward handling.

FRA also understands that there has been a recent shift in the industry from the use of incandescent to LED bulbs within marker lights. FRA seeks comment on the effect this change has had and will have on visibility. Further, to allow for flexibility over time as EOT device technology and design changes, FRA also seeks comments on the utility and feasibility of establishing a performance-based standard in lieu of the specific height requirements of this section.

Appendix A to Part 221 Procedures for Approval of Rear End Marking Devices

To correct typographical errors, FRA is modifying ''perscribed'' to ''prescribed'' in paragraph (a)(1)(2)(ii) and ''peformed'' to ''performed'' in paragraph (b)(3)(ii).

Proposed Amendments to 49 CFR Part 232

Section 232.1 Scope

Paragraph (b) of § 232.1 describes how the scope of part 232 would change in phases after the January 2001 publication of a final rule that created part 232. Paragraph (c) and the final phrase of paragraph (d) includes similarly antiquated instructions. Those dates, and their associated options, have since passed and the scope of part 232 has been fully realized under § 232.1. Since these dates and former options provide no guidance for current or future compliance, FRA proposes removing paragraph (b)'s historical schedule, paragraph (c) in its entirety, and the final phrase in paragraph (d) providing for earlier optional compliance. FRA also proposes moving paragraph (d) to paragraph (c). FRA seeks comment on these changes.

Section 232.5 Definitions

Section 232.5 defines certain terms as they are used in part 232. In this

section, FRA is proposing to update the definition of the term ''Air Flow Indicator, AFM'' and add definitions for ''air repeater unit'' and ''APTA.'' All new air brake systems are equipped with digital AFM indicators, and many analog AFM indicators are being replaced by digital versions. FRA is clarifying the definition of the ''Air Flow Indicator, AFM'' to acknowledge the use of digital versions, and to specify that a digital version must have markings of equivalent or finer resolution to that specified by FRA for an analog device.

FRA proposes to add the term ''air repeater unit'' in § 232.205, and define that term as ''a car, container or similar device that provides an additional brake pipe air source by responding to air control instructions from a controlling locomotive using a communication system such as a distributed power system.'' FRA understands a specialized car, other rolling equipment, or containers in well cars can be used for this purpose. The communications must be akin to a distributed power system to ensure accurate and sufficient responses. These existing systems are identified here merely for illustration. Ultimately, it is the purpose and use of the technology, not its physical description, that determines whether the item is an air repeater unit. FRA purposefully recognizes this distinction to avoid limiting innovation and future options. FRA seeks comments on the accuracy and sufficiency of this definition.

FRA also proposes adding a definition for ''APTA'', the American Public Transportation Association, since the organization is referenced often as a source for standards and input.

Section 232.11 Penalties

This section contains provisions regarding penalties. Since the section was last amended, DOT has issued a final rule, in accordance with the Federal Civil Penalties Inflation Adjustment Act of 1990 (FCPIAA), as amended by the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015 (2015 Act),[2] that provides the 2018 inflation adjustment to civil penalty amounts that may be imposed for violations of certain DOT regulations. *See* 83 FR 60732 (Nov. 27, 2018). To avoid the need to update this section every time the civil penalty amounts are adjusted for inflation, FRA has changed this section by replacing references to specific penalty amounts with general references to the minimum civil monetary penalty, ordinary maximum civil monetary penalty, and aggravated maximum civil monetary penalty. FRA has also added language to this section referring readers to 49 CFR part 209, appendix A, where FRA will continue to specify statutorily provided civil penalty amounts updated for inflation and to FRA's website at *www.fra.dot.gov* which contains a schedule of civil penalty amounts used in connection with this part.

Section 232.103 General Requirements for all Train Brake Systems

In a 2001 rulemaking, FRA incorporated by reference AAR Standard S–469–47 (''Performance Specification for Freight Brakes'')[3] into § 232.103(l). FRA subsequently also referenced S–469–47 in § 232.603. Later in 2001, however, AAR updated S–469–47 for style and format with no change in substance and reissued it as S–469–01. After briefly being out-of-print, in 2006 AAR permanently returned S–469–01 to its Manual of Standards and Recommended Practices.

S–469 is the AAR's identical publication of the Interstate Commerce Commission Order 13528, originally published in 1945. Between 1947 and 2000, S–469 and Order 13528 were simultaneously published in the AAR Manual of Standards and Recommended Practices and as appendix B in 49 CFR part 232. The 2001 revision of part 232 ceased to publish Order 13528 as appendix B, and refers the public to obtain this document from the AAR. The purpose of the document is to define and prescribe requirements for power brakes and appliances for operating power brake systems.

Accordingly, FRA proposes updating the citation to the presently available S–469–01. FRA also will correct AAR's address. FRA seeks comments on these updates.

Section 232.205 Class I Brake Test-Initial Terminal Inspection

Section 232.205 contains the requirements for conducting Class I brake tests-initial terminal inspections. Section 232.205 requires a train to receive a Class I brake test (as described in paragraph (c) of the section) at certain times. For example, § 232.205 requires a Class I brake test be performed when a train is initially assembled, when the consist is changed in certain ways (by adding or removing cars), and when a train is off-air for more than four hours.[4] FRA proposes to revise this section to extend the four-hour off-air limitation to 24 hours. FRA also proposes changes to brake pipe leakage requirements during certain Class I air brake tests, and requirements associated with AFM indicator calibration.

Under the existing regulation, if a train or equipment (*e.g.,* individual cars) is left unattached to any air source (*e.g.,* locomotive, yard air) for more than four hours, it must receive a Class I brake test prior to further operation of the train. *See* 49 CFR 232.205(a)(3). Moreover, to ensure that its air brake system did not degrade, and to allow a railroad to delay a full-train Class I test in many circumstances, equipment off-air for more than four hours may require a Class I or II test prior to being added to an en route train, and will require a Class III brake test prior to being operated in revenue service. *See* 49 CFR 232.209(a)(1) and 232.211(a)(3)–(a)(5). This requirement also affects yard air applications. *See* § 232.217(c)(1). For a more substantial history and analysis of the off-air requirement, *see* 66 FR 4103, 4122, Jan. 17, 2001.

In December 2017, AAR filed a petition for waiver from the 4-hour rule, contending it is too restrictive. *See* Docket No. FRA–2017–0130.[5] Subsequently, in a letter dated July 12, 2018—included in the public docket to this rulemaking proceeding—AAR submitted a petition for rulemaking mirroring the waiver request it submitted in December 2017. *See* Docket No. FRA–2018–0093, *available at https://www.regulations.gov/document?D=FRA-2018-0093-0002.* To support its filing, AAR supplied data provided by its member railroads and a Failure Modes and Effect Analysis

[2] The FCPIAA and the 2015 Act require federal agencies to adjust minimum and maximum civil penalty amounts for inflation to preserve their deterrent impact. *See* 83 FR 60732, Nov. 27, 2018.

[3] In 1945, FRA's predecessor agency, the Interstate Commerce Commission (ICC), and AAR agreed on certain power brake and draw bar standards, which ICC partially memorialized in Interstate Commerce Commission Order No. 13528, Investigation of Power Brakes and Appliances for Operating Power-Brake Systems, 10 FR 6787, June 6, 1945 (''ICC Order 13528''). ICC Order 13528 referenced an appendix that was not published until months later in a Supplement to the Code of Federal Regulations. *See* 49 CFR part 132 (Power Brakes and Draw Bars (Railroad)), Appendix (Specifications and Requirements for Power Brakes and Appliances for Operating Power Brake Systems for Freight Service) (Supp. 1945). While this late-published appendix to ICC Order 13528 was the regulation requiring compliance, in 1947 AAR published an identical AAR Standard S–469–47. Eventually, the ICC Order 13528 appendix was moved into appendix B of 49 CFR part 232.

[4] Earlier rules required the performance of Class I air brake test on equipment left off air for only two hours or more. The four hours referenced in the existing rule reflects a compromise subsequently recommended by industry stakeholders.

[5] The Safety Board denied the waiver petition finding that the relief requested was more appropriately addressed through the rulemaking process and that there was a lack of supporting data submitted with the waiver request.

(FMEA). According to AAR, the data provided in its petition for rulemaking supports the conclusion that time off-air does not correlate with higher failure rates. Page one of Appendix 7 of AAR's petition includes data submitted by seven (7) Class 1 railroads from the period between March 1, 2017, and March 1, 2018. According to AAR, the data shows that line of road failures (expressed as emergency brake applications), for which a specific mechanical cause is not found, occurred 0.20 times per million car miles in Canada, where a valid air brake inspection may remain off-air for 24 hours or longer; while the equivalent line of road failure rate on US railroads is 0.27 times per million car miles, where a valid air brake inspection may only remain off-air for four hours. AAR contends safety improvements in air brake technology should further mitigate safety concerns and support allowing cars to be kept off-air for extended periods of time, well beyond 24 hours, without requiring a Class I brake test. For example, AAR states that leakage on standing trains has been greatly reduced by welded brake piping and fittings and ferrule-clamped air hoses (the rail industry no longer uses grip type fittings, in accordance with interchange rules). In addition, AAR cites continuous improvements in car control valves since the last regulatory change as well as industry adoption of federal requirements to perform biannual inspections on yard air systems and oil and contaminant separators to keep the compressed air clean. AAR also contends that providing a 24-hour off-air period would help harmonize US and Canadian regulations, as Canadian regulations currently permit cars to be off-air for up to 24 hours without the equivalent of a Class I brake test.

In this NPRM, FRA is responding to AAR's petition for rulemaking by proposing to change the off-air requirements. As noted above, AAR's petition, and its included data sets, have been placed in the docket to this proceeding. FRA finds that the supporting information provided by AAR demonstrates that a reasonable extension of time permitted under the off-air requirement could improve railroad efficiency and would not impact the safety of railroad operations. FRA agrees that the technological improvements cited by AAR have been beneficial in improving the overall health of brake systems. In addition, when considering an extension of permissible off-air time, FRA finds the data provided by AAR in Appendix 7 of its petition, comparing Canadian and U.S. operations, supportive of AAR's request. The data provided by AAR shows a lower, yet statistically insignificant, rate of line-of-road failures (*i.e.,* failures found en route on an operating train, not by inspectors or otherwise while standing still) attributed to air brakes in Canada (allowing 24 hours off-air) than in the United States (allowing only 4 hours off-air). The data also includes same-railroad results (based on CN and CP data) showing fewer undesired and unintended emergency brake applications occurring in Canada than in the United States. *See* AAR Petition for Rulemaking, July 12, 2018, Appendix 7, Slide 4. FRA seeks comments and information as to what reasons there may be for Canada's lower rates of air-brake-related failures that would better inform FRA of the off-air requirement's impact.

Furthermore, by extending the time that equipment is permitted to remain off-air without requiring additional brake testing, the AAR predicts a significant reduction in tests performed for this reason, decreasing wait times, and increasing network velocity. AAR states an extension of the off-air requirement will also reduce locomotive idling times spent providing a source of compressed air and will allow railroads to eliminate older sources of yard air, but will also ensure that brakes are inspected often enough to ensure they are in proper working condition. Accordingly, in this NPRM, FRA proposes to extend the off-air limitation from 4 hours to 24 hours in §§ 232.205, 232.209, 232.211, and 232.217. FRA seeks comments on this proposal. FRA also seeks comments on the accuracy and sufficiency of the data supplied by AAR to support this relief.

In the 2001 final rule revising the regulations governing power brake systems, FRA extended the time from two hours to four hours during which equipment may remain off-air without additional inspection. In its conclusion to limit the amount of time that equipment may be off-air to four hours, FRA noted its concern that in certain circumstances, the length of time that equipment is off air can impact the equipment's air brake system particularly in cold weather or in areas where the potential for vandalism is high due to the equipment left standing. Further, FRA stated:

> [I]f equipment were allowed to be off-air for an excessive amount of time, it would be virtually impossible for FRA to ensure that equipment is being properly retested as it would be extremely difficult for FRA to determine how long a particular piece of equipment was disconnected from a source of compressed air. In order to make such a determination, FRA would have to maintain observation of the equipment for days at a time.

66 FR 4103, 4122, Jan. 17, 2001. FRA recognizes that it may verify off-air duration through train and car movement records, the presence of any ground air sources, and witness interviews. However, FRA remains concerned about how to easily and accurately determine the length of time equipment may have been disconnected from an air source, particularly given the proposal to increase the permissible off-air duration. FRA believes that since 2001, there have been numerous technological and operational advances that provide railroads with the ability to track the amount of time equipment is left off a source of compressed air and that railroads should be able to track the 24-hour off-air period in some manner so that FRA can exercise appropriate oversight where necessary. Rather than propose a specific requirement regarding such tracking, FRA seeks comment on whether such tracking is necessary or whether there are other means by which FRA can determine the amount of time equipment is left off a source of compressed air. In addition, FRA seeks comment on what types of tracking systems or methods might be available to the industry related to this issue and how tracking data should be maintained. FRA requests that commenters also include quantified information on how such a tracking system may burden or benefit each railroad. FRA also seeks comment on how to codify any such requirements.

FRA also recognizes that Canada has permitted equipment to remain off-air without a brake inspection for as long as 48 hours upon notification to Transport Canada (TC). *See* Railway Freight and Passenger Train Brake Inspection and Safety Rule section 11.2(b), Transport Canada, Oct. 27, 2014, available at *https://www.tc.gc.ca/eng/railsafety/rules-tco0184-139.htm#section11* (''A No.1 brake test is not required on: A block swap of cars that have been off-air for no more than 24 hours or 48 hours after notifying the department.''). In practice, FRA understands TC receives only a small number of such notifications per year, almost exclusively during the holidays or special situations such as a labor strike. At most, TC states that two locations provide such notifications up to 1–2 times per month.

While not specifically proposing a similar provision, FRA requests comments on whether to extend the off-air limitation to 48 hours under certain

circumstances and conditions, including appropriate, sufficient, and timely notification to FRA. FRA seeks comment on how often this provision is utilized in Canada and under what circumstances it is used and, if FRA were to adopt a similar provision, under what circumstances it should be available, how often it would be utilized, and whether a provision requiring FRA notification of a railroad's use of the provision would be justified. More specifically, FRA seeks proposals concerning the documentation, contents, timing, delivery, acknowledgment, and memorialization of any potential notification requirement. FRA recognizes that §§ 232.207(c)(2) and 232.213(a)(1) already include notification procedures and seeks comments on those provisions' potential applicability in this instance.

FRA also requests comment on potential regulatory alternatives to a time-off-air limit that would address the same safety risks and ensure that, despite equipment being off air for any length of time, that equipment's air brakes are in proper working condition. FRA recognizes that time off-air may not be directly linked to brake failures, but given the multitude of variables that can affect brake system integrity (*e.g.,* environmental factors such as temperature and humidity, operational factors (*e.g.,* use of power braking, time taken to inspect equipment, quality of compressed air from locomotives or yard air plants), age, and overall condition of the equipment), FRA has not identified a feasible alternative to the off-air requirement. Despite the many technical advancements in air brake technology, with the exception of certain specialized air brake systems such as electronically-controlled pneumatic brakes, the structure of air brake systems on rail equipment involves many connections, which by nature cause the systems to experience gradual leaks once removed from an air source. For example, in its investigation of the 2013 Lac-Mégantic, Quebec accident, the Transportation Safety Board of Canada (TSB), cited two instances of air brake failures where brake systems of rail equipment failed after being left off-air for approximately one hour. In the first instance, TSB cited weather conditions as the cause of the failure and in the second instance, TSB cited the condition of the equipment itself. *See* TSB Railway Investigation Report R13D0054 (*available at tsb.gc.ca*). Accordingly, FRA recognizes that a time-off-air requirement does not directly protect against all air brake failures, but FRA has not yet identified an effective alternative. FRA requests comments on whether any potential alternatives to the off-air requirement exist that are potentially less burdensome and more efficient, while ensuring the same level of safety. FRA also invites comment on what, if any, additional changes to the off-air requirement could be made to make the requirement even less burdensome than proposed in this rule, including, but not limited to, extending the proposed 24-hour window to longer windows (*e.g.,* 36 or 48 hours and under what conditions such extensions would be warranted). FRA asks that commenters specifically explain how any alternatives identified would meet the statutory requirement of 49 U.S.C. 20302(d)(2) requiring any changes to the regulations governing the ''installing, inspection, maintaining, and repair'' of train air brakes be made ''only for the purpose of achieving safety.''

Existing § 232.205 provides two methods for conducting Class I brake tests on pressure-maintaining brake valves such as the standard 26–L brake valve: (1) A leakage test; or (2) an air flow method test. *See* § 232.205(c)(1)(i), (ii). It is physically impossible to prevent all leakage from a train's brake pipe given the mechanical connections between cars' air hoses (*i.e.,* a certain amount of air will always leak through the mechanical connections) and each method of testing measures the pressure drop in a train's brake pipe in different ways. The leakage test measures the amount of compressed air leaking from the brake pipe, while the air flow test method measures the amount of compressed air the pressure maintaining valve is putting back into the brake pipe in order to maintain the line's pressure. Regardless of the test method employed, existing § 232.205 requires the pressure at the rear of the train to be within 15 psi of the pressure that the train will be operated at (known as the ''pressure taper'').

When conducting a Class I test using the air flow method, existing paragraph (c)(1)(ii)(B) prohibits brake pipe leakage from exceeding 60 cubic feet per minute (CFM). FRA proposes increasing the limit to 90 CFM when distributed power (DP) or an air repeater unit is utilized.

The traditional air flow test is measured from a single point of air flow, at the controlling locomotive of the train. In other words, the traditional air flow test method is measuring the amount of air the controlling locomotive's brake system is putting back into the train's brake pipe. Because the air originates at a single source (the controlling locomotive) and travels sequentially through each car's air brake system, each connected via a mechanical air hose, gradually the pressure in the train's airline tapers off. DP trains have locomotives located at two or more locations in the train, providing a uniform distribution of power to reduce unwanted in-train forces, and providing for multiple supplies of air brake pressure and control. Similarly, air brake repeater boxcars or containers mounted in well cars have been used to provide multiple sources of air brake pressure and control. When DP locomotives or air repeater units are used to conduct Class I brake tests, air in the train line is controlled from each of those sources, resulting in the pressure through the brake pipe being better maintained.

Canadian railroads have operated with the higher air flow limit of 90 CFM on DP trains since 2011. In 2013, BNSF demonstrated on a train of 110 grain cars that, when air pressure is provided at each end of the train consist through DP, a maximum 90 CFM air flow would only reduce the brake pipe pressure by 8 psi, well within the 15 psi pressure taper limit of § 232.205(c)(1)(i)(A). Brake propagation rates were found to be comparable to 60 CFM levels. After consideration of BNSF's data and test findings, the Safety Board permitted a test waiver to test the concept and develop data on the use of 90 CFM airflow on DP trains. *See* Docket No. FRA–2012–0091.

Under this waiver, BNSF, CN, CP, and UP operated test trains with oversight by a test committee comprised of railroad representatives, AAR brake committee members, affected labor representatives, air brake and DP equipment manufacturers, an FRA test monitor, and others involved with the operation of DP trains at higher CFM air flows (over 60 CFM, but less than 90 CFM). All testing procedures and parameters were subject to a consensus of the entire test committee, and the approval of the FRA test monitor. Between December 5, 2013, and January 13, 2017, the test committee supervised operation of 68 trains. All 68 trains operated safely and without incident. One unintentional brake release occurred that the test committee concluded was an anomaly and not related to the test. FRA subsequently granted these railroads a standard waiver without the need for test committee supervision under Docket No. FRA–2012–0091.

In light of the proven safety and efficacy of the waiver, FRA proposes the use of a 90 CFM air flow limit on distributed power and air brake repeater equipped trains. *See* proposed

§ 232.205(c)(ii)(B). The waivers permitted this flexibility subject to various conditions to ensure safety. FRA recognizes that the conditions in those waivers may be railroad- or territory-specific. To ensure the same level of safety intended by FRA when establishing the conditions applicable to each railroad's waiver operations, but to allow for continued flexibility, FRA proposes requiring that each railroad implement operating rules to ensure compliant operation of a train if air flow exceeds these parameters after the Class I brake test is completed. *See* proposed § 232.205(c)(1)(ii)(B). In other words, an operating plan amended in accordance with this proposal would replace many of the restrictions and conditions of an associated waiver. A railroad may consider using the applicable waiver's conditions as a template or starting point when drafting their operating rules on this subject. FRA seeks comments on this proposal.

Current § 232.205(c)(1)(iii) requires air flow indicator calibration at least every 92 days and prohibits the calibration of air flow test orifices at temperatures below 20 degrees Fahrenheit. These standards were developed during a 1998 rulemaking incorporating into regulation the conditions from a previous waiver. *See* 63 FR 48294, 48305, Sept. 9, 1998. However, in that rulemaking, FRA noted one railroad's report that it had problems calibrating the devices in extremely cold weather until it calibrated both components of the devices used (the AFM indicator and the test orifice) at temperatures of 20 degrees Fahrenheit and above. *See* 63 FR 48294, 48305, Sep. 9, 1998. In other words, to accurately calibrate the devices, the entire AFM system—not just the test orifices—must be calibrated at not less than 20 degrees Fahrenheit.

However, in the 1998 rule, FRA failed to specify that both the AFM indicator and the test orifice must be calibrated at temperatures of 20 degrees Fahrenheit or above. Currently, BNSF is conducting a test waiver to study the safety and efficacy of extending the AFM calibration period to 184 days. During that proceeding, the AFM Test Waiver Committee determined that an air flow indicator (not calibration test orifice) calibrated at below 20 degrees F will not be able to maintain the required ±3 CFM accuracy at high (*i.e.,* > 90 degrees F) ambient temperatures. *See* Docket No. FRA–2016–0086. The Committee brought this to FRA's attention when it was effectively reminded of this original 1998 comment by the poor results of calibrating the AFM at lower temperatures.

Under the law of volumes (also known as Charles's Law), when the pressure on a sample of dry gas (ideally dry and without condensation or other contaminants) is held constant, the Kelvin temperature and the volume will be in direct proportion. This also means that as the temperature rises and the volume expands, the flow through the calibration orifice will change. Because of Charles's Law, when train brake air pressure is calibrated at very low temperatures, the temperature-volume relationship will cause air flow at high ambient temperatures to be outside the permitted accuracy of ±3 CFM. Therefore, FRA proposes clarifying that the temperature of the AFM indicator and the test orifices, must be considered during calibration to insure accuracy.

FRA proposes new paragraph (c)(1)(v) to codify long-standing FRA guidance regarding the compliant handling of an inoperative or out-of-calibration AFM indicator. As noted above, because § 232.205 allows railroads to choose between two methods of performing Class 1 brake tests: (1) The traditional leakage test; or (2) the air flow method using an AFM indicator, the installation and use of an AFM indicator is optional and the primary method of the leakage test (a test that does not require an AFM indicator) is always available.

Under the Locomotive Inspection Act (the ''Act''; 49 U.S.C. 20701), a locomotive and its ''appurtenances'' must be ''in proper condition and safe to operate'' before it can be placed in service. FRA's Locomotive Safety Standards (49 CFR part 229) implement the Act. Under the Act, if a locomotive or appurtenance of a locomotive does not meet the ''in proper condition and safe to operate'' standard, it may not be placed in service. *See* 49 CFR 229.7. Because the use of an AFM indicator is optional and is not necessary for a locomotive to be ''in proper condition and safe to operate'', an AFM indicator is not an appurtenance to the locomotive under the Act. Accordingly, the daily inspection requirements of part 229 do not apply to an AFM indicator.

To clarify the rules applicable to noncompliant or out of calibration air flow indicators, FRA proposes to add a new paragraph (c)(1)(v) addressing AFM indicators. This proposed new paragraph would prohibit the use of an AFM indicator not in compliance with part 232, require a noncompliant AFM indicator to be tagged under § 232.15(b), with the tag to be placed in a conspicuous location of the controlling locomotive cab. Furthermore, FRA recognizes that part 229 (at § 229.29(g)) currently requires the date of a locomotive's AFM indicator's calibration to be recorded on the locomotive's blue card (*i.e.,* the Locomotive and Inspection Repair Record (FRA Form F 6180.49A)). FRA believes this requirement has merit and will complement the proposal in this rule to tag noncompliant AFM indicators under § 232.15(b). To consolidate the rules related to AFM indicators, FRA may consider removing this requirement from part 229 and moving it to part 232 in this or a future rulemaking to consolidate the rules related to AFM indicators. FRA seeks comments on this proposal.

Section 232.209 Class II Brake Tests—Intermediate Inspection

FRA proposes amending the off-air requirements of this section. Please refer to the off-air requirements analysis provided for § 232.205.

Section 232.211 Class III Brake Tests-Trainline Continuity Inspection

FRA proposes amending the off-air requirements of this section. Please refer to the off-air requirements analysis provided for § 232.205.

Section 232.213 Extended Haul Trains

Under existing § 232.213, a railroad may be permitted to move a train up to, but not exceeding, 1,500 miles between brake tests and inspections if the railroad designates a train as an extended haul train and the train meets certain requirements. On March 1, 2019, AAR submitted a petition for rulemaking that, if granted, would allow rail cars with a valid electronic air brake slip system (''eABS'') record to travel up to 2,500 miles between brake tests and inspections. In this NPRM, FRA is addressing only foundational requirements, such as the 24-hour off-air proposal, that could support the full implementation of eABS. However, FRA intends to address eABS in a future proceeding.

For a train to qualify as an extended haul train, paragraph (a)(1) requires the railroad to, in writing, designate the train as an extended haul train and provide certain information to FRA, including ''[t]he type or types of equipment the train will haul.'' *See* 49 CFR 232.213(a)(1)(iii). This provision requiring a train description was issued in lieu of requiring specific identification of every train and is necessary to facilitate FRA's ability to independently monitor a railroad's operation of these extended haul trains. The applicable NPRM, to which the final rule stated it was not making changes, indicated that the requirement was to also help ensure ''that a train is

in safe and proper condition to travel a prescribed distance without further inspection.'' 59 FR 47676, 47693, Sept. 16, 1994.

Since the final rule was published, railroads have periodically supplied FRA with spreadsheets identifying their extended haul trains and providing the required information. Over time, some railroads have changed the format of their spreadsheet submissions and FRA has generally accepted an abbreviated identification of each train type as long as it is sufficiently descriptive. However, recently railroads have included very generic equipment type references on their submissions (*e.g.,* ''general merchandise,'' ''manifest,'' ''any''). These very generic descriptions are not adequate to inform FRA what the type of equipment a train is hauling and FRA is taking this opportunity to remind railroads of the need to identify with sufficient clarity the type of equipment being hauled in extended haul trains. FRA seeks comments and information on how to achieve such clarity on what level of description FRA should expect. Given that this provision is intended to ensure FRA can differentiate extended haul trains from non-extended haul trains for oversight purposes, FRA also seeks comments on whether there is a better way to differentiate such trains. FRA considered alternatives to the requirement for railroads to designate trains to FRA in advance as extended haul trains, but short of developing recordkeeping and retention requirements which would necessarily include more detailed information than currently required so that FRA could distinguish between extended haul and non-extended haul trains and determine whether brake tests and other inspections were performed as required, FRA did not identify any less burdensome method. FRA requests comments, however, on any potential alternatives that would achieve the same result as the designation currently required.

When designating the train in writing to FRA, paragraph (a)(1)(iv) also requires the railroad to identify ''the locations where all train brake and mechanical inspections and tests will be performed.'' In other words, the submission must include the location of *every* expected brake and mechanical inspection, not only the Class I inspections performed by a qualified mechanical inspector, on the designated train. A failure to notify FRA of the locations the required initial or intermediate brake tests are performed could result in a violation for non-compliance. FRA has previously exercised enforcement discretion and has not objected to railroads changing the designated locations of brake tests and mechanical inspections of extended haul trains provided the railroad utilizes the notification procedures applicable to Class IA inspections (§ 232.207(c)(2)), or if the railroad provides an updated electronic spreadsheet identifying the locations. FRA believes that this notification procedure is appropriate for extended haul trains in the event of an emergency that alters normal train operations such as a derailment. Accordingly, FRA proposes to add a new paragraph (a)(8) mirroring the notification procedure of § 232.207(c)(2) that would allow railroads the flexibility to designate different inspection and test locations for extended haul trains under certain circumstances. FRA believes that codification of this practice would provide the railroads a flexible reporting procedure, and ultimately regulatory certainty, to address emergency circumstances involving extended haul operations. FRA seeks comment on this proposal.

Section 232.213 previously provided for an inbound inspection of all extended haul trains. Certain related requirements sunset on April 1, 2007, without further FRA action, and FRA formally removed those requirements in 2008. *See* 73 FR 61511, 61523, 61553, Dec. 15, 2008. Nevertheless, several other references to the inbound inspection remain. FRA proposes to edit paragraphs (a)(5) and (a)(6) and modify numbering, where necessary, to provide clarity and to remove language that is no longer applicable. FRA seeks comments on this proposal.

FRA also requests comments on potential regulatory alternatives to the existing extended haul provisions of § 232.213, potential improvements that could be made to the section to clarify or expand the provision, or whether this provision could be eliminated by the adoption of certain alternative standards or requirements. For example, the section currently distinguishes between inspections conducted by ''qualified mechanical inspectors'' and ''qualified persons'' (both of which are defined in § 232.5). FRA requests comments and data on whether this distinction is still justified and necessary. FRA also requests comments on the utility and feasibility of extending the mileage limits between brake inspections the section contains and what, if any, safety data would support extensions of those limits. As noted above, FRA intends to address issues such as mileage limitations between brake tests in a separate rule addressing eABS as requested by AAR.

Section 232.217 Train Brake Tests Conducted Using Yard Air

FRA proposes amending the off-air requirements of this section. Please refer to the off-air requirements analysis provided for § 232.205.

Section 232.219 Double Heading and Helper Service

Section 232.219 provides regulations for the operation of double headed and helper locomotives in a train including when Helper Link or a similar technology is used to control the emergency brake function on helper locomotive consists. The rule, as written, is appropriate for a train with an EOT device; however, the rule is not compatible with trains that are not equipped with traditional EOT devices, including ECP-brake operated trains and trains with DP units in lieu of an EOT device. To address this issue, BNSF and MRL both sought regulatory relief from the requirements in 49 CFR 232.219. *See* Docket Nos. FRA–2014–0013 and FRA–2006–26435. BNSF originally sought relief for ECP brake-configured train consists, and MRL sought relief for DP consists with one or more DP (non-helper) locomotives on the rear. FRA conditionally granted both waiver requests. Since granting this relief, there has been no known negative impact on safety involving these operations.

FRA believes that codifying BNSF's and MRL's respective waiver requests would improve efficiency and is consistent with railroad safety. As such, FRA proposes new paragraph (d) permitting use of a properly installed and tested EOT device on the helper locomotive that is cut-in to the train line air supply. However, each railroad would ensure its safe operation by developing and implementing an associated operating rule consistent with parts 221 (concerning marker light display) and 232 (concerning EOT device installation and testing) and the conditions established in the waivers discussed above. FRA seeks comments on this proposal.

Section 232.305 Single Car Air Brake Tests

For conducting the single car air brake tests prescribed by § 232.305(b), FRA has incorporated by reference AAR Standard S–486–04. AAR Standard S–486–04 was issued by AAR in 2004 and incorporated by reference into § 232.305(a) by FRA in 2008. *See* 73 FR 61553, 61522, 61553, Oct. 16, 2008. Under the processes outlined in § 232.307—which allows the industry to request FRA approval of modifications to a currently acceptable single car air

brake test procedure—FRA approved the use of AAR Standard S–486–18 in May 2018. *See* Docket No. FRA–2018–0011.

The purpose of S–486 is to provide a means of making a general check on the condition of the brake equipment on cars as called for in the Filed Manual of the AAR Interchange Rules. Only Sections 4 and 5 are codified as these are the tests that ensure safe operation of individual freight car brakes to comply with the Safety Appliance Act. Other sections of the Standard contain supplemental information that are not codified to provide flexibility to be updated without meeting Federal requirements. These include troubleshooting guidance and information on the maintenance and construction of the physical testing devices.

AAR Standard S–486–18 is the industry's current, most updated standard for conducting single car air brake tests, and includes provisions for testing valves equipped with brake cylinder maintaining features that the 2004 version does not. In this rulemaking, FRA proposes to update the rule text to reflect these approved changes. More specifically, FRA proposes that paragraph (a) incorporate by reference AAR Standard S–486–18.

In addition to updating the referenced version of AAR Standard S–486, FRA also proposes incorporating by reference AAR Standard S–4027, which provides for a more automated version of the single car air brake test. For example, while the manual test is dependent upon the visual acuity of the carmen performing the inspection to read an analog gage to within 1 psi, an automated test can digitally measure and record a pressure to within the more exact 0.1 psi and does not require the same visual acuity on the part of the carmen performing the inspection. The testing device also provides electronic prompts and feedback to the carmen, ensuring that the test is performed in a consistent manner.

BNSF and UP jointly petitioned FRA to allow use of AAR Standard S–4027, ''Automated Single-Car Test Procedure, Conventional Brake Equipment,'' in lieu of AAR Standard S–487. *See* Docket No. FRA–2013–0030. AAR Standard S–4027, while based on the requirements of AAR Standard S–486, includes automated processes to perform a single car air brake test with an automated single car test device (ASCTD). More specifically, the standard produces performance uniformity between each ASCTD regardless of manufacturer and describes the SCT procedure and the minimum performance that must be demonstrated to achieve AAR approval. Sections 3 and 4 are codified as they pertain to an automated tester connected to the end of a freight car, while section 13 pertains to an automated test performed from the side of a car using the four-pressure manifold. These sections include the tests that ensure safe operation of individual freight car brakes to comply with the Safety Appliance Act. AAR most recently updated AAR Standard S–4027 in 2018.

To be clear, FRA proposes to formally update the incorporated by reference AAR Standard S–486–04 to S–486–18, which has already gone through the § 232.307 approval process. That standard concerns traditional single car air brake tests. In the alternative, if a railroad wishes to perform an automated single car air brake test, FRA proposes to incorporate by reference AAR Standard S–4027–18.

In 2013, FRA granted a conditional test waiver permitting a two-year period between automated single car testing procedures and establishing a test committee comprised of representatives from the air brake manufacturers, affected labor representatives, FRA, railroad representatives, AAR brake committee members, and others involved in ASCTD manufacture and operations. *See* Docket No. FRA–2013–0030. Under the consensus procedures established by the test committee and an FRA test monitor, BNSF, CN, CSX, and UP tested more than 800,000 freight cars over 4.5 years. The results appear to support the railroads' original test thesis that ASCTD testing would provide an average 11.5 percentage point reduction in repeat failures (measured as failure occurring within one year of a single car test). The actual testing showed small differences between manual and automated tests initially but increasing differences over time. After one year, the rate of repeat failures for ASCTD-tested cars was 5 percentage points lower than manually-tested cars, and 12 percentage points lower after 4.5 years. Moreover, while a traditional SCT device has a single hose connecting to the brake system to measure all functions, an ASCTD may utilize separate hoses to independently measure test pressures at their original sources on cars equipped with a four-pressure manifold for a more precise test (*i.e.,* a four-pressure automated test). Freight cars tested with a four-pressure automated test provided a repeat failure rate of only about 5%, representing a 12-percentage point improvement over a traditional single car test after one year. After 4.5 years, four-pressure tested cars widened their margin over manually-tested cars by 42 percentage points, or about a 58% reduction in the rate of repeat failures. The test committee also found that ASCTDs generally identify more relevant air brake system defects in the categories of air components, control valves and pipe brackets, valves and subsystems, and other tests. Lastly, the test waiver data has shown that a car tested with an ASCTD is 26% less likely to have an AAR-condemnable wheel impact load detector (WILD) indication, with four-pressure showing an even better 70% improvement. Docket No. FRA–2013–0030 contains a summary of the test committee's findings. FRA seeks comments on the above assessments and the applicability and sufficiency of those findings.

With the knowledge gained under the test waiver, FRA believes AAR Standard S–4027 improves efficiencies and overall brake system health and is consistent with railroad safety. Therefore, FRA believes the standard is sufficiently mature and ripe for regulatory consideration as a standalone-standard under paragraph (a). FRA seeks comments on this proposal.

Paragraph (b) identifies the events triggering a required single car air brake test. For instance, under paragraph (b)(2), ''a railroad shall perform a single car air brake test on a car when a car is on a shop or repair track . . . for any reason and has not received a single car air brake test within the previous 12-month period.'' Based on the results performed by the tests under Docket No. FRA–2013–0030, and the ability of the subject technology to provide a more comprehensive testing of the braking system, FRA feels it is warranted to propose an extension of time between single car air brake tests using this technology. Accordingly, FRA proposes relaxing the requirements under paragraph (b)(2) by only requiring a single car air brake test on ASCTD tested cars appearing on a shop or repair track within the past 24 months; and extend the period for cars tested with the four-pressure ASCTD test to 48 months. FRA believes the data found under the test waiver supports this change. FRA seeks comments on this proposal.

FRA also requests comments on the need to maintain the dual timeframes for conducting single car air brake tests in paragraphs (b)(2) and (c). Recognizing this framework was originally established based on an industry request to replace mandatory system overhaul with more frequent qualification testing, and that there are certain efficiencies gained by performing the single car air brake tests when they are already on a

repair track, FRA specifically requests comments on whether the repair yard provision of paragraph (b)(2) should be eliminated so that a single car air brake test would be required only every five years or when the brake system is impacted as contemplated under paragraph (b)(4). FRA understands that, on a daily basis, thousands of individual freight cars (out of the approximately 1.2 million freight cars in the North American fleet) are overdue for their single car air brake test. FRA requests comment on the effect the potentially eliminating the repair track provision of paragraph (b)(2) may have on this statistic and any policies to mitigate this potential issue.

Section 232.403 Design Standards for One-Way End-of-Train Devices

Section 232.403 includes design standards for one-way EOT devices. More specifically paragraphs (d)(6) and (f)(4) include shock requirements for the rear unit and front unit, respectively, referring to a 0.1 second window.

FRA technical staff believes a time window of 0.1 seconds is too large for maintaining a peak shock threshold and is likely a typographical or other error from a previous rulemaking. FRA proposes harmonizing the shock requirements in paragraphs (d)(6) and (f)(4) with the 0.01 second peak shock threshold in AAR Standards S–9152 and S–9401. FRA seeks comments on this proposal.

Since traditional EOT devices rely on batteries as a power source, paragraph (g)(2) requires a minimum EOT device battery life of 36 hours at 0 °C. Manufacturers have developed EOT devices that rely less on batteries and more on an internal air-powered generator. The air-powered generator converts mechanical energy—created by the brake pipe air pressure—into electricity used to power the EOT device.

FRA has provided conditional waivers providing relief from this requirement for EOT devices using an air-powered generator as a power source. *See* Docket Nos. FRA–2006–25794 and FRA–2001–9270. In the interest of railroad safety, FRA required each subject EOT device to include a back-up battery—with a minimum operating life of 12 hours at 0 °C—in the event the air-powered generator stops functioning. FRA further required each subject railroad to submit annual reports providing the number of units provided to the railroad, identifying any device modifications, and summarizing air-powered generator-powered EOT device performance.

To date, FRA has not received any reports of accidents due to EOT device operations under these waivers. The railroads initially provided annual reports with EOT device data supplied by their manufacturers. However, after the safety of air turbines was well-established, the reports were reduced to a summary provided every five years along with the waiver renewal request. *See* Docket No. FRA–2001–9270. Upon review, FRA believes that the conditions originally applied to the waiver are no longer necessary to ensure railroad safety due to the railroad industry's continued safe operation with air-driven, alternator-equipped EOT devices. Accordingly, FRA proposes codifying the waivers in proposed new paragraph (g)(3) to provide for use of an air-powered generator as a primary power source as long as it operates with a backup battery with a minimum of 12 hours of continuous power at 0 °C. FRA believes this change would improve efficiency and is consistent with railroad safety. FRA seeks comments on this proposal. Specifically, FRA seeks comments on (1) what factors should be used to determine which source should be considered the primary power supplier and how FRA and the industry should quantify measuring those sources to determine primacy; (2) whether the proposal to require any backup battery to have a minimum of 12 hours of continuous power at 0 °C is sufficient; (3) whether the reference temperature of 0 °C is appropriate or if another reference temperature would be more appropriate; and (4) the best methods for FRA and the industry to accurately measure each battery's initial charge at installation.

Section 232.407 Operations Requiring Use of Two-Way End-of-Train Devices; Prohibition on Purchase of Nonconforming Devices

Section 232.407(f)(2) deals with battery charging requirements for two-way EOT devices. This requirement applies to a main battery storing the energy necessary to power the EOT device. However, with an air-powered generator, the energy created is used to either directly power the EOT device, charge the back-up battery, or both. FRA proposes adding language to the end of paragraph (f)(2) requiring the testing of air-powered generator-equipped devices to determine the residual charge of the back-up battery before initiating operation. This requirement is meant to ensure that the generator back-up battery has a minimal residual charge, which will ensure that it is working properly and is capable of temporarily powering the EOT device should the air-powered generator fail.

Section 232.409 Inspection and Testing of End-of-Train Devices

Section 232.409 includes requirements for EOT device inspection and testing. More specifically, existing paragraph (d) requires each EOT device's telemetry equipment be tested at least every 368 days for accuracy and calibrated, if necessary, in accordance with the manufacturer's specifications and procedures.

The need for periodic telemetric equipment calibration has been reduced by technological advances that include continuous feedback such as phase-lock loop (PLL). FRA has granted multiple waiver requests, providing conditional relief from the 368-day calibration requirement when using PLL or a similar feedback loop technology. In the interest of railroad safety, FRA required vendors to apply a weather-resistant label on each EOT device covered under the applicable dockets and the waiver recipients—*e.g.,* DPS, Ritron, Siemens, and Wabtec—to file annual reports indicating the number of covered EOT devices purchased and the number that failed to operate as intended. *See, e.g.,* Docket Nos. FRA–2015–0044; FRA–2012–0096; FRA–2009–0015; and FRA–2004–18895.

FRA has received no reports of PLL-equipped radios not failing in a fail-safe manner. When a PLL-equipped radio is turned on and does not complete its ''sum check'' function—the initializing software routine to check system health—because frequency cannot be verified, it simply will not operate. Based on data garnered from the required annual reporting on these waivers, summarized in the renewal applications contained in the applicable dockets, FRA believes incorporating the waivers into the regulations is consistent with railroad safety and will provide railroads added flexibility to improve the efficiency of their operations. Accordingly, FRA proposes revising paragraph (d) to require telemetry equipment to be ''tested for accuracy and calibrated if necessary according to the manufacturer's specifications and procedures,'' effectively codifying the existing waivers from paragraph (d)'s calibration requirement. FRA seeks comments on this proposal.

While § 232.409 includes EOT device inspection and testing requirements, including testing of ''radio frequencies and modulation of the device,'' it does not include calibration requirements for EOT device air pressure sensors (*i.e.,* air gauges or transducers in lieu of gauges).

FRA proposes new paragraph (e) to address this apparent omission.

FRA's locomotive safety standards (49 CFR part 229) currently require annual calibration of those electronic gauges that are part of the locomotive equipment or otherwise used to perform single car tests or train brake tests conducted using yard air. *See* 49 CFR 229.27(b), 232.217(d), and 232.309(c). Specifically, paragraphs (a) and (b) of § 229.27 require each device that: (1) Engineers use to aid in the control or braking of a train or locomotive; and (2) provides an indication of air pressure electronically, to be tested by comparison at least every 368 days with a test gauge or self-test designed for this purpose. While FRA believes that, as written, § 229.27 applies to the air pressure sensor in an EOT device since the air pressure reading at the EOT device is used to control the train, FRA believes this requirement should be more explicit. Accordingly, in proposed new paragraph (e), FRA proposes to cross-reference § 229.27. FRA seeks comments on this proposal.

FRA is concerned with the safety risks associated with loss of communications events between the controlling locomotive and the EOT device, including both those exceeding 16 minutes and 30 seconds (''en route failure''), thereby prompting a notification to the locomotive engineer, and those not exceeding the en route failure threshold but go unreported to the engineer. Under § 232.405(b), the front unit must listen for acknowledgment of a signal from the rear unit and must repeat the brake application command if the acknowledgment is not correctly received. However, recent reports indicate various controlling locomotives have failed to send an emergency application signal to the EOT device after 2-minutes of not receiving a signal from the rear end unit. Initial field reports indicate that some railroads remain unaware of the level of communication loss experienced. Accordingly, FRA seeks comments on the frequency and duration of communications losses; what operational and technological solutions for communication loss the industry has considered and implemented; what should be done to ensure an emergency signal is sent and received by the system when needed even in the event of a temporary communications loss; and what has and should be done to alert the locomotive engineer that a loss of communication has occurred. FRA encourages the use of modern event, fault, and data logging technology now contained in many onboard systems and, accordingly, FRA is particularly interested in comments on the feasibility and availability of these types of technology to address the issue of temporary communications loss.

Section 232.603 Design, Interoperability, and Configuration Management Requirements

FRA is revising paragraph (a) and adding paragraph (g) to meet the formatting and structure requirements for incorporation by reference under 1 CFR part 51. FRA proposes to update the standards in paragraphs (a)(1), (a)(2), (a)(4), (a)(6), and (a)(7). The purposes of the standards are as follows: S–4200 ensures uniform and consistent functionality and performance of ECP freight brake systems from different manufacturers; S–4210 provides the qualification test procedure to verify that the designed components have high reliability, will withstand harsh environmental conditions, and have a minimum 8-year operating life; S–4230 facilitates freight car and locomotive interoperability without limiting the proprietary design approaches used by individual suppliers and defines the requirements for an intratrain communications (ITC) system for freight equipment in revenue interchange service; S–4250 ensures uniform, consistent, and interoperable functionality and performance between devices developed by different manufacturers, by defining the high-level performance requirements to operate multiple locomotives via an ITC network; and S–4260 identifies the test procedure that individual suppliers would complete to establish the interoperability baseline among ECP/WDP (wire distributed power) systems that comply with the AAR S–4200 series of standards.

The standard referenced in paragraphs (a)(3), (a)(5), and (a)(8) are the most updated versions, so FRA does not propose to revise those paragraphs.

FRA seeks comments on these updates.

Subpart H—Tourist, Scenic, Historic, and Excursion Operations Braking Systems

FRA proposes to create a new subpart H and move appendix B, with some revisions, to that new subpart. Appendix B was created to preserve part 232 as it existed prior to the 2001 final rule and was intended to apply to tourist, scenic, historic, and excursion operations.[6] To retain the historic integrity of the text, FRA made subsequent changes in a separate appendix narrative titled ''Clarifications.'' FRA recognizes that such a regulatory solution may be confusing and eventually, unwieldy and, therefore, is proposing to move the requirements of appendix B into a new subpart H. FRA seeks comments on this proposal.

For the most part, proposed subpart H reflects the exact text of appendix B. However, when converting § 232.17 in appendix B to proposed § 232.717, FRA proposes to add paragraph (b)(2) to reference AAR Standard S–4045–13, which establishes for passenger equipment cars operating in the U.S. and Canada standard maintenance practices and operating requirements, including the periodic inspection requirements for air brake cleaning, repairing, lubricating, and testing (known in the industry as ''clean, oil, test, and stencil'' or ''COT&S'').

This proposed addition would change the brake inspection requirements from AAR Standard S–045 to S–4045–13 which would extend the timeline related to periodic brake valve inspections, based upon the safety experience of the waiver at Docket No. FRA–2013–0063 and experience with the extended period for inspections at 49 CFR 238.309(d)(2) and (3) for conventional passenger equipment.[7] Railroads using 26–C type valves would now be required to test those valves every 60 months (instead of 48 months). Similarly, railroads using D–22 type valves would now be required to test those valves every 48 months (instead of 36 months). FRA seeks comments on codifying this AAR standard.

FRA also proposes to amend paragraph (b)(3) to provide AAR and APTA's updated addresses.

[6] On May 31, 2001, FRA issued an update to part 232. Some of the prior rule text was preserved in section I of appendix B to part 232, which remains applicable to tourist, scenic, historic, or excursion railroads on the general system of transportation, who have not been required to operate under present parts 232 or 238. *See* §§ 232.1(d) and 232.3(c)(5); 66 FR 4104, 4145–46, 4214, Jan. 17, 2001.

[7] AAR Standard S–045 contains the periodic COT&S inspection requirements for air brakes. However, AAR Standard S–045 has been out-of-print since 1985 and is no longer supported by AAR. FRA discovered that many railroads not governed by part 238 (Passenger Equipment Safety Standards) were utilizing the periodic attention requirements of section 238.309 instead of the correct requirements under part 232, appendix B. FRA suspects the confusion of applicability and compliance may be partly due to AAR Standard S–045 cited in appendix B being out of print. In 2013, upon notification of this situation, AAR updated and reissued the standard as AAR Standard S–4045–13. In December 2013, FRA issued a waiver to permit the use of AAR Standard S–4045–13 in lieu of the specified and out-of-print AAR Standard S–045 as incorporated by reference in section 232.17(b)(2) to appendix B. *See* Docket No. FRA–2013–0063.

FRA proposes to add paragraph (c) to allow tourist, scenic, historic, and excursion railroads to develop a compliant plan for servicing obsolete brake equipment. Under this proposal, these railroads—when utilizing equipment not covered by an applicable, available, and incorporated AAR standard—would only have to maintain the equipment in a safe and suitable condition for service according to a railroad's written maintenance plan. A compliant maintenance plan, including its COT&S component and a periodic attention schedule, must be based upon a standard appropriate to the equipment. For example, a compliant plan might utilize a recognized industry standard or a former AAR interchange standard to the extent it is modified to account for the unique operating conditions of the particular tourist railroad operation. The railroad must make its written maintenance plan available to FRA upon request.

While FRA expects some individual railroads may develop their own written maintenance plans, FRA understands that HeritageRail Alliance, or a similar industry organization, may develop a consensus industry standard for the periodic maintenance of this brake equipment. FRA does not anticipate developing a formal special approval procedure for these written maintenance plans in order to allow flexibility in their development. However, when informally evaluating maintenance plans, FRA will consider the appropriate AAR-published standard in the last year a valve appeared in the Code of Rules or the Field Manual, the usage of the equipment, scheduled interim single car tests, and the railroad's past history of compliance.

FRA recognizes that there may not be a sufficient regulatory understanding of what it means to be a tourist, scenic, historic, or excursion railroad. FRA seeks comments on the applicability of this section and potential definition to capture the intended regulatory entities.

FRA proposes paragraph (d) to provide a means by which parties may seek approval of updated, revised, or alternative standards currently incorporated into appendix B and to be recodified under subpart H. FRA further proposes to include in paragraph (d) a streamlined public notice process for future modifications to those incorporated references. FRA proposes that this text mirror the standard air brake document modification language found in current §§ 232.307 and 232.603(f). FRA believes these proposed additions would: (1) Implement appropriate safety measures better tailored to small operations; (2) make permanent presently granted relief in Docket No. FRA–2013–0063; and (3) significantly decrease the burden of hours spent on waiver documentation and uncertainty of continued use, while maintaining appropriate safety. FRA seeks comments on this proposal.

Based on the proposed amendments, FRA believes that the text in § 232.3, proposed subpart H, and elsewhere may require additional amendments other than those proposed in this rule for clarity and cross-referencing purposes. FRA seeks suggestions and comments on such changes.

FRA recognizes that some of the requirements in current appendix B also exist elsewhere in part 232. For instance, the requirements of paragraphs (c) through (e) to § 232.0 in appendix B, proposed to be recodified as § 232.700(c) through (e), may already be covered under §§ 232.5, 232.9, and 232.11, and that the requirements of § 232.3 in appendix B, proposed to be recodified as § 232.703, may already be covered by § 232.103(l). FRA seeks comments on whether these or similar requirements are duplicative and should not be included in subpart H. FRA also seeks comments on how to otherwise streamline and clarify appendix B as it is recodified as subpart H.

Appendix B makes various references to AAR Code of Rules and AAR Code of Tests.[8] FRA understands that the titles of documents have since been changed to the Field Manual of the AAR Interchange Rules and the Manual of Standards and Recommended Practices, respectively. While FRA addresses this change in proposed § 232.717(c), FRA seeks comments on how to better revise proposed subpart H to account for this change. FRA also seeks comments on how manage future changes to such AAR documents while ensuring future compliance with 1 CFR part 51.

IV. Regulatory Impact and Notices

A. E.O. 12866 and DOT Regulatory Policies and Procedures

This NPRM is a significant regulatory action in accordance with existing policies and procedures under E.O. 12866. The scope of this analysis is limited to the revisions that FRA is proposing to make to the parts 218, 221, and 232. FRA concluded that because this NPRM generally includes only voluntary actions or alternative action by designated entities that would be voluntary, this NPRM does not impart additional burdens on regulated entities.

In accordance with these Executive Orders, FRA identified various waivers that warrant consideration for regulatory codification. In particular, FRA is proposing to incorporate into regulations several motive power and equipment waivers providing conditional exceptions to existing rules concerning air brake testing, EOT devices, brake valves, and helper service. More specifically, FRA is proposing changes to the regulations affecting the use of EOT devices, Helper Link devices or similar technologies, and the performance of Class I air brake tests and single car air brake tests (SCT). FRA is also proposing to extend the time freight rail equipment can be ''off-air'' before requiring a new brake inspection. Furthermore, FRA is also proposing technical corrections to existing regulations.

FRA estimated the cost savings of this proposed rule. The cost savings of this proposed rule are provided in the table below.

COST SAVINGS OVER 10-YEAR PERIOD

[Values in millions]

Section	Present value 7%	Present value 3%	Annualized 7%	Annualized 3%
Helper Link	$3.9	$4.5	$0.6	$0.5

[8] FRA notes that the introductory text of section II, along with other places in sections I and II of appendix B to part 232, references AAR's ''Code of Tests,'' ''Code of Rules,'' and ''Manual of Standards and Recommended Practices.'' The Power or Train Brakes Safety Appliance Act of 1958 required that FRA's predecessor, the Interstate Commerce Commission, adopt as its own certain AAR rules, standards, and instructions. *See* Public Law 85–375, 72 Stat. 86 (Apr. 11, 1958), *available at https://www.gpo.gov/fdsys/pkg/STATUTE-72/pdf/STATUTE-72-Pg86.pdf,* and codified at 23 FR 3150, May 13, 1958. Some of those AAR standards were commonly referred to as AAR's ''Code of Tests'' or ''Code of Rules.'' AAR subsequently changed the Code of Rules to the ''Field Manual of the AAR Interchange Rules,'' and incorporated the Code of Tests into the ''AAR Manual of Standards and Recommended Practices.''

COST SAVINGS OVER 10-YEAR PERIOD—Continued

[Values in millions]

Section	Present value 7%	Present value 3%	Annualized 7%	Annualized 3%
D–22 Brake Valve	0.5	0.6	0.07	0.07
26–C Brake Valve	0.2	0.3	0.04	0.03
24-Hour Off-air	325.6	386.2	46.4	45.3
90 CFM	1.8	2.1	0.3	0.2
SCT 24 month	150.7	176.1	21.5	20.6
SCT 48 month	19.5	23.8	2.8	2.8
Waiver Cost Savings	0.1	0.1	0.01	0.01
Total	502.2	593.7	71.5	69.6

Over a 10-year period of analysis, the total cost savings are $502.2 million (using a 7% discount rate), and $593.7 million (using a 3% discount rate). The annualized cost savings are $71.5 million (using a 7% discount rate) and $69.6 million (using a 3% discount rate).

By way of explaining the above table, among the EOT device waivers incorporated into the NPRM, the waiver allowing a Helper Link (or similar technology) equipped train to use an alternative air brake test procedure will result in cost savings. The Helper Link technology reduces the employees' time in uncoupling the helper locomotive from the train so that it may be turned around to help other trains ascend steep grades. FRA bases its estimate of cost savings on this reduced labor time. For the 26–C and D–22 type brake valves, FRA is extending the time before these types of valves need to be inspected and cleaned, resulting in fewer tests and labor savings. FRA is also extending the time before a Class I brake test must be conducted on rail equipment that is not connected to a source of compressed air prior to being operated in a train again, from 4 hours to 24 hours. FRA estimates railroads will accrue savings from performing fewer brake tests, less locomotive idling time to keep rail cars on compressed air (including reduced fuel consumption), and less use of yard air sources. This provision will result in annualized cost savings of $46 million (using a 7% discount rate), the largest category of cost savings.

Similar to the flexibility provided by other waivers, permitting an increase in brake pipe leakage to 90 CFM under certain conditions will allow railroads to conduct air brake tests without having to wait for additional crews (to test in higher daytime temperatures), or run shorter trains. The efficiencies gained through codifying the 90 CFM waiver are monetized in the table above. Finally, FRA expects large cost savings by increasing the time between single car air brake tests from 12 to 24 months for automated tests, and to 48 months for automated tests using a four-pressure receiver. FRA estimates the longer interval between tests for rail cars using automated tests (about 1.1 million freight cars out of 1.6 million freight cars in service) will result in the monetized time savings shown in the table.

Separately, FRA expects the regulated community to submit fewer waiver requests, and requests for waiver extensions to FRA for the regulatory parts subject to this NPRM. FRA generally approves waivers for five years and may extend them upon request. Given the NPRM codifies these waivers, railroads and suppliers will save the cost of applying and re-applying for these waivers. These collective savings are represented in the Waiver Cost Savings category in the table.

FRA estimates this proposed rule would not impose any costs on the industry. This NPRM generally increases flexibility for the regulated entities by codifying waivers. It does not impose any new substantive requirements. Railroads and suppliers may choose voluntarily to take advantage of the flexibilities under this NPRM. However, under proposed § 232.409(e), FRA is clarifying the EOT device air pressure sensor needs to be tested annually. As this section clarifies an existing regulatory requirement, FRA is not accounting for these costs in the overall analysis for this rulemaking, but acknowledges railroads may incur a burden to calibrate the air pressure sensor on the EOT device. The burdens are further described in the regulatory evaluation accompanying this NPRM.

Therefore, the net cost savings of this proposed rule are equal to the cost savings. The table below shows the total net cost savings (values in millions).

	Present value 7%	Present value 3%	Annualized 7%	Annualized 3%
Net Cost Savings	$502.2	$593.7	$71.5	$69.6

The net cost savings are $502.2 million (7% discount rate) and $593.7 million (3% discount rate). The annualized net cost savings are $71.5 million (7% discount rate) and $69.6 million (3% discount rate).

As is discussed in the NPRM above, FRA does not believe that these provisions would have a negative impact on the safety of railroad operations. In fact, codifying several of the waivers may result in positive safety benefits for railroad employees. In general, the EOT device waivers, appendix B updates, 24-hour off-air, and automated single car tests will all reduce the frequency of air brake tests and inspections. Fewer brake tests and inspections will reduce the time employees are walking on potentially uneven ground such as track ballast (typically crushed stone), and reduce their chances of slipping, tripping, or falling. Also, railroad employees may reduce their chances of injury because they would spend less time moving in and around rail cars while connecting and disconnecting equipment for the brake test and checking equipment such as the brake pipe. For air brake tests conducted in yards, less frequent brake tests would likely result in employees reducing their exposure to adjacent train

traffic. FRA has not quantified these safety benefits because it does not have injury data specifically from conducting brake tests. FRA invites comment on the potential safety benefits from codifying these waivers.

B. Regulatory Flexibility Act and E.O. 13272

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601 *et seq.*) and E.O. 13272 (67 FR 53461, Aug. 16, 2002) require agency review of proposed and final rules to assess their impacts on small entities. An agency must prepare an Initial Regulatory Flexibility Analysis (IRFA) unless it determines and certifies that a rule, if promulgated, would not have a significant economic impact on a substantial number of small entities. FRA has not determined whether this proposed rule would have a significant economic impact on a substantial number of small entities. Therefore, FRA seeks comment on the potential small business impacts of the requirements in this NPRM. FRA prepared an IRFA, which is included as an appendix to the accompanying Regulatory Impact Analysis and available in the docket for the rulemaking (FRA 2018–0093), to aid the public in commenting on the potential small business impacts of the requirements in this NPRM.

C. Paperwork Reduction Act

FRA is submitting the information collection requirements in this proposed rule to the Office of Management and Budget (OMB) for approval under the Paperwork Reduction Act of 1995, 44 U.S.C. 3501 *et seq.* The sections that contain the new and current information collection requirements and the estimated time to fulfill each requirement is as follows:

CFR section	Respondent universe	Total annual responses	Average time per response	Total annual burden hours	Total annual dollar equivalent cost
229.27—Annual tests	30,000 locomotives	120,000 forms/filling	15 minutes	30,000 hours	$2,160,000
232.3—Applicability—Export, industrial, & other cars not owned by railroads-identification.	741 railroads	8 cards	10 minutes	1 hour	72
232.7—Waivers	741 railroads	2 petitions	160 hours	320 hours	23,360
232.15—Movement of Defective Equipment—Tags/Records.	1,620,000 cars	128,400 tags/records	2.5 minutes	5,350 hours	385,200
—Written Notification	1,620,000 cars	25,000 notices	3 minutes	1,250 hours	92,500
232.17—Special Approval Procedure					
—Petitions for special approval of safety-critical revision.	741 railroads	1 petition	100 hours	100 hours	7,300
—Petitions for special approval of pre-revenue service acceptance plan.	741 railroads	1 petition	100 hours	100 hours	7,300
—Service of petitions	741 railroads	1 petition	20 hours	20 hours	1,460
—Statement of interest	Public/railroads	4 statements	8 hours	32 hours	2,336
—Comment	Public/railroads	13 comments	4 hours	52 hours	3,796
232.103—Gen'l requirements—all train brake systems—stickers.	114,000 cars	70,000 stickers	10 minutes	11,667 hours	840,024
(n)(7)—RR Plan identifying specific locations or circumstances where equipment may be left unattended.	741 railroads	1 revised plans	10 hours	10 hours	730
—Notification to FRA when RR develops and has plan in place or modifies existing plan.	741 railroads	1 notice	30 minutes	1 hour	73
—Inspection of Equipment by Qualified Employee after Responder Visit.	741 railroads	12 inspections/records	4 hours	48 hours	3,456
232.107—Air source requirements and cold weather operations—Monitoring Plan (Subsequent Years).	10 new railroads	1 plan	40 hours	40 hours	2,920
—Amendments/Revisions to Plan	50 railroads/plans	10 revisions	20 hours	200 hours	14,600
—Recordkeeping	50 railroads/plans	1,150 records	20 hours	23,000 hours	1,679,000
232.109—Dynamic brake requirements—status/record.	741 railroads	1,656,000 records	4 minutes	110,400 hours	8,059,200
—Inoperative dynamic brakes: Repair record	30,000 locomotives	6,358 records	4 minutes	424 hours	30,528
—Tag bearing words ''inoperative dynamic brakes''.	30,000 locomotives	6,358 tags	30 seconds	53 hours	3,816
—Deactivated dynamic brakes (Sub. Yrs.)	8,000 locomotives	10 markings	5 minutes	1 hour	72
—Operating rules (Subsequent Years)	5 new railroads	5 rules	4 hours	20 hours	1,460
—Amendments/Revisions	741 railroads	15 revisions	1 hour	15 hours	1,095
—Requests to increase 5 mph overspeed restriction.	741 railroads	5 requests	30 min. + 20 hours	103 hours	7,519
—Knowledge criteria—locomotive engineers—Subsequent Years.	5 new railroads	5 amendments	16 hours	80 hours	5,840
232.111—Train handling information	5 new railroads	5 procedures	40 hours	200 hours	14,600
Sub. Yrs.—Amendments/Revisions	100 railroads	100 revisions	20 hours	2,000 hours	146,000
—Report requirements to train crew	741 railroads	2,112,000 reports	10 minutes	352,000 hours	25,696,000
232.203—Training requirements—Tr. Prog.—Sub Yr.	15 railroads	5 programs	100 hours	500 hours	36,500
—Amendments to written program	741 railroads	695 revisions	8 hours	5,560 hours	405,880
—Training records	741 railroads	67,000 records	8 minutes	8,933 hours	652,109
—Training notifications	741 railroads	67,000 notices	3 minutes	3,350 hours	244,550
—Audit program	741 railroads	1 plan + 695 copies	40 hours/1 min	52 hours	3,796
—Amendments to validation/assessment program.	741 railroads	50 revisions	20 hours	1,000 hours	73,000
232.205—Initial terminal inspection: Class I brake tests and notifications/records.	741 railroads	383,840 notices/records.	45 seconds	4,798 hours	355,052
(c)(1)(ii)(B)—RR Development/implementation of operating rules to ensure compliant operation of train if air flow exceeds stipulated section parameters after Class I brake test is completed (New Requirement).	741 railroads	10 revised operating rules.	8 hours	80 hours	5,840

CFR section	Respondent universe	Total annual responses	Average time per response	Total annual burden hours	Total annual dollar equivalent cost
(c)(1)(iii)—Form 49A notation/certification of last date of Air Flow Method (AFM) indicator calibration (Formally under 229.29b).	741 railroads	88,000 notations	2 minutes	2,933 hours	214,109
232.207—Class 1A brake tests—Designation Lists Where Performed.	741 railroads	1 list	1 hour	1 hour	73
Subsequent Years: Notice of Change to	741 railroads	250 notices	10 minutes	42 hours	3,066
232.209—Class II brake tests-intermediate "Roll-by inspection—Results to train driver.	741 railroads	159,740 comments	3 seconds	133 hours	9,709
232.213—Written Designation to FRA of Extended haul trains.	83,000 long dist. Movements.	250 letters	15 minutes	63 hours	4,599
—Notification to FRA Associate Administrator for Safety/FRA Regional Administrator of a change in the location where an extended haul brake test is performed (New Requirement).	10 railroads	250 notices	10 minutes	42 hours	3,066
232.219—Double heading and helper service: Testing/calibration/records of Helper Link devices used by locomotives (New Requirement).	2 railroads	50 recording of calibrations.	2 minutes	2 hours	148
232.303—General requirements—single car test: Tagging of Moved Equipment.	1,600,000 frgt. cars	5,600 tags	5 minutes	467 hours	33,624
—Last repair track brake test/single car test—Stenciled on Side of Equipment.	1,600,000 frgt. cars	240,000 markings	2 minutes	8,000 hours	576,000
232.307—Modification of single car air brake test procedures: Requests.	AAR	1 request + 3 copies	20 hours + 5 minutes	20 hours	1,460
—Affirmation Statement on Mod. Req. To Employee Representatives.	AAR	1 statement + 4 copies	30 minutes + 5 minutes.	1 hour	73
—Comments on Modification Request	Railroad/Public	2 comments	8 hours	16 hours	1,168
232.309—Repair track brake test	640 shops	5,000 tests	2 minutes	167 hours	12,024
232.403—Unique Code	245 railroads	12 requests	5 minutes	1 hour	73
232.409—Inspection/Tests/Records EOTs	245 railroads	447,500 notices/record	30 seconds	3,729 hours	268,488
—Telemetry Equipment—Testing/Calibration/Rcds (Revised Requirement).	245 railroads	17,000 recording of calibrations.	2 minutes	567 hours	40,824
232.503—Process to introduce new brake technology.	741 railroads	1 letter	1 hour	1 hour	73
—Special approval	741 railroads	1 request	3 hours	3 hours	219
232.505—Pre-revenue svc accept test plan—Submission of maintenance procedure.	741 railroads	1 procedure	160 hours	160 hours	11,680
—Amendments to maintenance procedure	741 railroads	1 revision	40 hours	40 hours	2,920
—Design description	741 railroads	1 petition	67 hours	67 hours	4,891
—Report to FRA Assoc. Admin. for Safety	741 railroads	1 report	13 hours	13 hours	949
—Brake system technology testing	741 railroads	1 description	40 hours	40 hours	2,920
Totals	741 railroads	5,608,433	N/A	578,268	42,159,140

All estimates include the time for reviewing instructions; searching existing data sources; gathering or maintaining the needed data; and reviewing the information. Pursuant to 44 U.S.C. 3506(c)(2)(B), FRA solicits comments concerning: Whether these information collection requirements are necessary for the proper performance of the functions of FRA, including whether the information has practical utility; the accuracy of FRA's estimates of the burden of the information collection requirements; the quality, utility, and clarity of the information to be collected; and whether the burden of collection of information on those who are to respond, including through the use of automated collection techniques or other forms of information technology, may be minimized. For information or a copy of the paperwork package submitted to OMB, contact Ms. Hodan Wells, Information Clearance Officer, at 202–493–0440, or Ms. Kimberly Toone at 202–493–6132.

Organizations and individuals desiring to submit comments on the collection of information requirements should direct them to Ms. Hodan Wells or Ms. Kimberly Toone, Federal Railroad Administration, 1200 New Jersey Avenue SE, 3rd Floor, Washington, DC 20590. Comments may also be submitted via email to Ms. Hodan Wells or Ms. Toone at the following addresses: *Hodan.Wells@dot.gov* and *Kimberly.Toone@dot.gov.*

OMB is required to make a decision concerning the collection of information requirements contained in this proposed rule between 30 and 60 days after publication of this document in the **Federal Register**. Therefore, a comment to OMB is best assured of having its full effect if OMB receives it within 30 days of publication. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

FRA is not authorized to impose a penalty on persons for violating information collection requirements which do not display a current OMB control number, if required. FRA intends to obtain current OMB control numbers for any new information collection requirements resulting from this rulemaking action prior to the effective date of the final rule. The OMB control number, when assigned, will be announced by separate notice in the **Federal Register**.

D. Environmental Impact

FRA has evaluated this proposed rule in accordance with the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 *et seq.*); FRA's regulations implementing NEPA; and other environmental statutes, Executive Orders, and related regulatory requirements. FRA has determined that this proposed rule does not require the the preparation of an environmental impact statement or environmental assessment because it is categorically excluded from detailed environmental review pursuant to 23 CFR 771.116(c)(15), covering, in part, the promulgation of rules.

In addition, in accordance with 23 CFR 771.116(b), the agency has further concluded that no unusual

circumstances exist with respect to this proposed rule that might trigger the need for a more detailed environmental review. As a result, FRA finds that this proposed rule is not a major Federal action significantly affecting the quality of the human environment.

E. Federalism Implications

E.O. 13132, ''Federalism'' (64 FR 43255, Aug. 10, 1999), requires FRA to develop an accountable process to ensure ''meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.'' ''Policies that have federalism implications'' are defined in the Executive Order to include regulations that have ''substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.'' Under E.O. 13132, the agency may not issue a regulation with federalism implications that imposes substantial direct compliance costs and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments or the agency consults with State and local government officials early in the process of developing the regulation. Where a regulation has federalism implications and preempts State law, the agency seeks to consult with State and local officials in the process of developing the regulation.

FRA has analyzed this proposed rule in accordance with the principles and criteria contained in E.O. 13132. This proposed rule generally codifies existing waivers or makes technical amendments to existing FRA regulations. FRA has determined that this final rule has no federalism implications, other than the possible preemption of state laws under 49 U.S.C. 20106. Therefore, the consultation and funding requirements of E.O. 13132 do not apply, and preparation of a federalism summary impact statement for the proposed rule is not required.

F. Unfunded Mandates Reform Act of 1995

Pursuant to section 201 of the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4, 2 U.S.C. 1531), each Federal agency shall, unless otherwise prohibited by law, assess the effects of Federal regulatory actions on State, local, and tribal governments, and the private sector (other than to the extent that such regulations incorporate requirements specifically set forth in law). Section 202 of the Act (2 U.S.C. 1532) further requires that before promulgating any general notice of proposed rulemaking that is likely to result in the promulgation of any rule that includes any Federal mandate that may result in expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of $100,000,000 or more (adjusted annually for inflation) in any 1 year, and before promulgating any final rule for which a general notice of proposed rulemaking was published, the agency shall prepare a written statement detailing the effect on State, local, and tribal governments and the private sector. This proposed rule would not result in such an expenditure, and thus preparation of such a statement is not required.

G. Energy Impact

E.O. 13211 requires Federal agencies to prepare a Statement of Energy Effects for any ''significant energy action.'' 66 FR 28355, May 22, 2001. FRA evaluated this proposed rule in accordance with E.O. 13211 and determined that this regulatory action is not a ''significant energy action'' within the meaning of the E.O.

E.O. 13783, ''Promoting Energy Independence and Economic Growth,'' requires Federal agencies to review regulations to determine whether they potentially burden the development or use of domestically produced energy resources, with particular attention to oil, natural gas, coal, and nuclear energy resources. *See* 82 FR 16093, March 31, 2017. FRA determined this proposed rule would not burden the development or use of domestically produced energy resources.

H. Privacy Act

In accordance with 5 U.S.C. 553(c), DOT solicits comments from the public to better inform its rulemaking process. DOT posts these comments, without edit, to *www.regulations.gov,* as described in the system of records notice, DOT/ALL–14 FDMS, accessible through *www.dot.gov/privacy.* In order to facilitate comment tracking and response, we encourage commenters to provide their name, or the name of their organization; however, submission of names is completely optional. Whether or not commenters identify themselves, all timely comments will be fully considered. If you wish to provide comments containing proprietary or confidential information, please contact the agency for alternate submission instructions.

List of Subjects

49 CFR Part 218

Occupational safety and health, Penalties, Railroad employees, Railroad safety, and Reporting and recordkeeping requirements.

49 CFR Part 221

Railroad safety.

49 CFR Part 232

Incorporation by reference, Power brakes, Railroad safety, Securement, Two-way end of train devices.

The Proposed Rule

For the reasons discussed in the preamble, FRA proposes to amend parts 218, 221, and 232 of chapter II, subtitle B of title 49, Code of Federal Regulations as follows:

PART 218—RAILROAD OPERATING PRACTICES

■ 1. The authority citation for part 218 is revised to read as follows:

Authority: 49 U.S.C. 20103, 20107, 20131, 20138, 20144, 20168, 28 U.S.C. 2461, note; and 49 CFR 1.89.

■ 2. Amend § 218.22 by revising paragraph (c) introductory text and paragraph (c)(5) to read as follows:

§ 218.22 Utility employee.

* * * * *

(c) A utility employee may be assigned to and serve as a member of a train or yard crew without the protection otherwise required by subpart B of part 218 of this chapter only under the following conditions:

* * * * *

(5) The utility employee is performing one or more of the following functions: Set or release hand brakes; couple or uncouple air hoses and other electrical or mechanical connections; prepare rail cars for coupling; set wheel blocks or wheel chains; conduct air brake tests to include cutting air brake components in or out and position retaining valves; inspect, test, install, remove or replace a rear end marking device or end of train device; or change batteries on the rear-end marking device or the end-of-train device if the change may be accomplished without the use of tools. Under all other circumstances, a utility employee working on, under, or between railroad rolling equipment must be provided with blue signal protection in accordance with §§ 218.23 through 218.30 of this part.

* * * * *

PART 221—REAR END MARKING DEVICE—PASSENGER, COMMUTER AND FREIGHT TRAINS

■ 3. The authority citation for part 221 is revised to read as follows:

Authority: 49 U.S.C. 20103, 20107; 28 U.S.C. 2461, note; and 49 CFR 1.89.

■ 4. Amend § 221.13 by revising paragraph (d) to read as follows:

§ 221.13 Marking device display.

* * * * *

(d) The centroid of the marking device must be located at a minimum of 40 inches above the top of the rail.

■ 5. Amend appendix A to part 221 by revising paragraphs (a)(2)(ii) and (b)(3)(ii) to read as follows:

Appendix A Procedures for Approval of Rear End Marking Devices

* * * * *

(a) * * *

(2) * * *

(ii) The results of the tests performed under paragraph (i) of this subsection demonstrate marking device performance in compliance with the standard prescribed in 49 CFR 221.15;

* * * * *

(b) * * *

(3) * * *

(ii) The results of the tests performed under paragraph (i) of this subsection demonstrate marking device performance in compliance with the standard prescribed in 49 CFR 221.15;

* * * * *

PART 232—BRAKE SYSTEM SAFETY STANDARDS FOR FREIGHT AND OTHER NON-PASSENGER TRAINS AND EQUIPMENT; END-OF-TRAIN DEVICES

■ 6. The authority citation for part 232 is revised to read as follows:

Authority: 49 U.S.C. 20102–20103, 20107, 20133, 20141, 20301–20303, 20306, 21301–20302, 21304; 28 U.S.C. 2461, note; and 49 CFR 1.89.

■ 7. Amend § 232.1 by revising paragraphs (b) and (c) and removing paragraph (d).

The revisions read as follows:

§ 232.1 Scope.

* * * * *

(b) Except as otherwise specifically provided in this paragraph or in this part, railroads to which this part applies must comply with all the requirements contained in this part.

(c) Except for operations identified in § 232.3(c)(1), (4), and (6) through (8), all railroads part of the general railroad system of transportation must operate pursuant to the requirements in subpart H of this part (which contains the requirements in this part 232 as they existed on May 31, 2001), until they are either required to operate pursuant to the requirements contained in this part or the requirements contained in part 238 of this chapter.

■ 8. Amend § 232.3 by revising paragraph (c) introductory text as follows:

§ 232.3 Applicability.

* * * * *

(c) Except as provided in § 232.1(c) and paragraph (b) of this section, this part does *not* apply to:

* * * * *

■ 9. Amend § 232.5 by revising the definition of Air Flow Indictor, AFM and adding definitions for Air repeater unit and APTA in alphabetical order to read as follows:

§ 232.5 Definitions.

* * * * *

Air Flow Method Indicator, AFM means a calibrated air flow measuring device used as required by the air flow method (AFM) of qualifying train air brakes and with information clearly and legibly displayed in analog or digital format and visible in daylight and darkness from the engineer's normal operating position. Each AFM indicator includes:

(1) Markings from 10 to 80 cubic feet per minute (CFM), in increments of 10 CFM or less; and

(2) Numerals indicating 20, 40, 60, and 80 CFM for continuous monitoring of air flow.

Air repeater unit means a car, container, or similar device that provides an additional brake pipe air source by responding to air control instructions from a controlling locomotive using a communication system such as a distributed power system.

APTA means the American Public Transportation Association.

* * * * *

■ 10. Amend § 232.11 by revising paragraph (a) to read as follows:

§ 232.11 Penalties.

(a) Any person (including but not limited to a railroad; any manager, supervisor, official, or other employee or agent of a railroad; any owner, manufacturer, lessor, or lessee of railroad equipment, track, or facilities; any employee of such owner, manufacturer, lessor, lessee, or independent contractor) who violates any requirement of this part or causes the violation of any such requirement is subject to a civil penalty of at least the minimum civil monetary penalty and not more than the ordinary maximum civil monetary penalty per violation, except that: Penalties may be assessed against individuals only for willful violations, and, where a grossly negligent violation or a pattern of repeated violations has created an imminent hazard of death or injury to individuals, or has caused death or injury, a penalty not to exceed the aggravated maximum civil monetary penalty per violation may be assessed. See 49 CFR part 209, appendix A. Each day a violation continues shall constitute a separate offense. FRA's website at *www.fra.dot.gov* contains a schedule of civil penalty amounts used in connection with this part.

* * * * *

§ 232.103 General requirements for all train brake systems.

■ 11. Amend § 232.103 by revising paragraph (l) to read as follows:

* * * * *

(l) Except as otherwise provided in this part, all equipment used in freight or other non-passenger trains must, at a minimum, meet the Association of American Railroads (AAR) Standard S–469–01, ''Performance Specification for Freight Brakes,'' contained in the AAR Manual of Standards and Recommended Practices, Section E (January 1, 2006). The Director of the **Federal Register** approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You may obtain a copy from the Association of American Railroads, 425 Third Street SW, Washington, DC 20024, telephone: (202) 639–2345, email: *publications@aar.com,* website: *https://aarpublications.com.* You may inspect a copy of the document at the Federal Railroad Administration, Docket Clerk, 1200 New Jersey Avenue SE, Washington, DC 20590 (telephone: (855) 368–4200) or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email *fedreg.legal@nara.gov,* or go to: *www.archives.gov/federal-register/cfr/ibr-locations.html.*

* * * * *

■ 12. Amend § 232.205 by revising paragraphs (a)(3), (b)(1), (b)(2), (c)(1)(ii)(B), (c)(1)(iii) through (v), and (e) to read as follows:

§ 232.205 Class I brake test-initial terminal inspection.

(a) * * *

(3) A location where the train is off-air for a period of more than 24 hours.

(b) * * *

(1) The solid block of cars is comprised of cars from a single previous train, the cars of which have previously

received a Class I brake test and have remained continuously and consecutively coupled together with the train line remaining connected, other than for removing defective equipment, since being removed from its previous train and have not been off-air for more than 24 hours; or

(2) The solid block of cars is comprised of cars from a single previous train, the cars of which were required to be separated into multiple solid blocks of cars due to space or trackage constraints at a particular location when removed from the previous train, provided the cars have previously received a Class I brake test, have not been off-air more than 24 hours, and the cars in each of the multiple blocks of cars have remained continuously and consecutively coupled together with the train line remaining connected, except for the removal of defective equipment. Furthermore, these multiple solid blocks of cars shall be added to a train in the same relative order (no reclassification) as when removed from the previous train, except for the removal of defective equipment.

(c) * * *

(1) * * *

(ii) * * *

(B) Use a calibrated AFM indicator to measure air flow. A train equipped with at least one distributed power unit or an air repeater unit providing a source of brake pipe control air from two or more locations must not exceed a combined flow of 90 cubic feet per minute (CFM). Otherwise, the air flow must not exceed 60 CFM. Railroads must develop and implement operating rules to ensure compliant operation of a train if air flow exceeds these parameters after the Class I brake test is completed.

(iii) The AFM indicator must be calibrated for accuracy at periodic intervals not to exceed 92 days. The AFM indicator and all test orifices must be calibrated at temperatures of not less than 20 degrees Fahrenheit. AFM indicators must be accurate to within ±3 standard cubic feet per minute (CFM) at 60 CFM air flow.

(iv) For each AFM indicator, its last date of calibration must be recorded and certified on Form F6180–49A.

(v) An AFM indicator not incompliance with this part must:

(A) Not be used, including in the performance of a leakage test or to aid in the control or braking of the train;

(B) Be tagged in accordance with § 232.15(b) and include text that it is ''inoperative'' or ''overdue''; and

(C) Be placed with its tag in a conspicuous location of the controlling locomotive cab.

* * * * *

(e) A railroad must notify the locomotive engineer that the Class I brake test was satisfactorily performed, whether the equipment to be hauled in his train has been off-air for a period of more than 24 hours, and provide the information required in this paragraph to the locomotive engineer or place the information in the cab of the controlling locomotive following the test. The information required by this paragraph may be provided to the locomotive engineer by any means determined appropriate by the railroad; however, a written or electronic record of the information must be retained in the cab of the controlling locomotive until the train reaches its destination. The written or electronic record must contain the date, time, number of freight cars inspected, and identify the qualified person(s) performing the test and the location where the Class I brake test was performed.

* * * * *

■ 13. Amend § 232.209 by revising paragraph (a) introductory text and paragraph (a)(1) to read as follows:

§ 232.209 Class II brake tests—intermediate inspection.

(a) At a location other than the initial terminal of a train, a Class II brake test must be performed by a qualified person, as defined in § 232.5, on the following equipment when added to a train:

(1) Each car or solid block of cars, as defined in § 232.5, that has not previously received a Class I brake test or that has been off-air for more than 24 hours;

* * * * *

■ 14. Amend § 232.211 by revising paragraphs (a)(3) through (5) to read as follows:

§ 232.211 Class III brake tests-trainline continuity inspection.

(a) * * *

(3) At a point, other than the initial terminal for the train, where a car or a solid block of cars that is comprised of cars from only one previous train the cars of which: (i) Have remained continuously and consecutively coupled together with the trainline remaining connected, other than for removing defective equipment, since being removed from its previous train that has previously received a Class I brake test; and (ii) that has not been off-air for more than 24 hours is added to a train;

(4) At a point, other than the initial terminal for the train, where a solid block of cars that is comprised of cars from a single previous train is added to a train, provided: (i) The solid block of cars was required to be separated into multiple solid blocks of cars due to space or trackage constraints at a particular location when removed from the previous train; (ii) the cars have previously received a Class I brake test; (iii), have not been off-air more than 24 hours; and (iv) the cars in each of the multiple blocks of cars have remained continuously and consecutively coupled together with the train line remaining connected, except for the removal of defective equipment. Furthermore, these multiple solid blocks of cars must be added to the train in the same relative order (no reclassification) as when removed from the previous train, except for the removal of defective equipment; or

(5) At a point, other than the initial terminal for the train, where a car or a solid block of cars that has received a Class I or Class II brake test at that location, prior to being added to the train, and that has not been off-air for more than 24 hours, is added to a train.

* * * * *

■ 15. Amend § 232.213 by:

■ a. Revising paragraph (a)(5);

■ b. Revising paragraphs (a)(6)(i) and (ii); and

■ c. Adding paragraph (a)(8).

The revisions, removals, and addition read as follows:

§ 232.213 Extended haul trains.

(a) * * *

(5) The train must have no more than one pick-up and one set-out en route, except for the set-out of defective equipment pursuant to the requirements of this chapter. Cars added to the train en route must be inspected pursuant to the requirements contained in paragraphs (a)(2) through (5) of this section at the location where they are added to the train.

(6) * * *

(i) If the train will move 1,000 miles or less from that location before receiving a Class IA brake test or reaching destination, a Class I brake test must be conducted pursuant to § 232.205 to ensure 100 percent effective and operative brakes.

(ii) If the train will move greater than 1,000 miles from that location without another brake inspection, the train must be identified as an extended haul train for that movement and must meet all the requirements contained in paragraphs (a)(1) through (5) of this section. Such trains must receive a Class I brake test pursuant to § 232.205 by a qualified mechanical inspector to ensure 100 percent effective and operative brakes, a freight car inspection pursuant to part 215 of this chapter by an inspector designated under § 215.11 of this chapter, and all cars containing non-

complying conditions under part 215 of this chapter must either be repaired or removed from the train.

* * * * *

(8) In the event of an emergency that alters normal train operations, such as a derailment or other unusual circumstance that adversely affects the safe operation of the train, the railroad is not required to provide prior written notification of a change in the location where an extended haul brake test is performed to a location not on the railroad's list of designated locations for performing extended haul brake tests, provided that the railroad notifies FRA's Associate Administrator for Safety and the pertinent FRA Regional Administrator within 24 hours after the designation has been changed and the reason for that change.

* * * * *

■ 16. Amend § 232.217 by revising paragraph (c)(1) to read as follows:

§ 232.217 Train brake tests conducted using yard air.

* * * * *

(c) * * *

(1) If the cars are off-air for more than 24 hours, the cars must be retested in accordance with § 232.205(c) through (f).

* * * * *

■ 17. Amend § 232.219 by adding paragraph (d) to read as follows:

§ 232.219 Double heading and helper service.

* * * * *

(d) As an alternative to paragraph (c), when helping trains equipped with distributed power or ECP brakes on the rear of the train, and utilizing a Helper Link device or a similar technology, a properly installed and tested end-of-train device may be utilized on the helper locomotive. Railroads must adopt and comply with an operating rule consistent with this section to ensure the safe use of this alternative procedure.

■ 18. Amend § 232.305 by revising paragraphs (a) and (b)(2) and adding paragraph (f) to read as follows:

§ 232.305 Single car air brake tests.

(a) Single car air brake tests must be performed by a qualified person in accordance with either Section 3.0, ''Tests-Standard Freight Brake Equipment,'' and Section 4.0, ''Special Tests,'' AAR Standard S–486–18; Section 3.0, ''Single-Car Test Requirements,'' Section 4.0, ''Special Tests,'' and Section 13.0 ''4-Pressure Single-Car Test Requirements,'' AAR Standard S–4027–18; an alternative procedure approved by FRA pursuant to § 232.17; or a modified procedure approved in accordance with the provisions contained in § 232.307.

(b) * * *

(2) A car is on a shop or repair track, as defined in § 232.303(a), for any reason and has not received either: A manual single car air brake test (AAR Standard S–486) within the previous 12-month period; an automated single car air brake test (AAR Standard S–4027 §§ 3.0 and 4.0) within the previous 24-month period; or a 4-pressure single car air brake test (AAR Standard S–4027 § 13.0) within the previous 48-month period;

* * * * *

(f) The Director of the Federal Register approves the incorporation by reference of the standards required in this section into this section in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You may inspect a copy of the material at the Federal Railroad Administration, Docket Clerk, 1200 New Jersey Avenue SE, Washington, DC 20590 (telephone: 855–368–4200). You may also inspect the material at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email *fedreg.legal@nara.gov,* or go to: *www.archives.gov/federal-register/cfr/ibr-locations.html.* You may obtain the material from the following source(s):

(1) Association of American Railroads (AAR), 425 Third Street SW, Washington, DC 20024, telephone: (202) 639–2345, email: *publications@aar.com,* website: *https://aarpublications.com.*

(i) AAR Standard S–486–18, ''Code of Air Brake System Tests for Freight Equipment,'' 2018.

(ii) AAR Standard S–4027–18, ''Automated Single-Car Test Equipment, Conventional Brake Equipment—Design and Performance Requirements,'' 2018.

(2) [Reserved]

■ 19. Amend § 232.403 by:

■ a. Revising paragraph (d)(6);

■ b. Removing paragraph (f)(4)(iii),

■ c, Revising paragraphs (f)(4)(ii), and (g)(2); and

■ d. Adding paragraph (g)(3).

The revisions and additions read as follows:

§ 232.403 Design standards for one-way end-of-train devices.

* * * * *

(d) * * *

(6) During a shock of 10 g. peak for 0.01 seconds in any axis.

* * * * *

(f) * * *

(4) * * *

(ii) During a shock of 10 g. peak for 0.01 seconds in any axis.

(g) * * *

(2) If power is supplied by one or more batteries only, the operating life must be a minimum of 36 hours at 0 °C.

(3) If power is supplied primarily by an air-powered generator, a backup battery is required with a minimum of 12 hours continuous power at 0 °C in the event the air-powered generator stops functioning as intended.

■ 20. Amend § 232.407 by revising paragraph (f)(2) to read as follows:

§ 232.407 Operations requiring use of two-way end-of-train devices; prohibition on purchase of nonconforming devices.

* * * * *

(f) * * *

(2) The rear unit batteries must be sufficiently charged at the initial terminal or other point where the device is installed and throughout the train's trip to ensure that the end-of-train device will remain operative until the train reaches its destination. Air-powered generator equipped devices must be tested for residual charge at installation before initiating generator operation.

* * * * *

■ 21. Amend § 232.409 by revising paragraph (d) and adding paragraph (e) to read as follows:

§ 232.409 Inspection and testing of end-of-train devices.

* * * * *

(d) The telemetry equipment must be tested for accuracy and calibrated if necessary according to the manufacturer's specifications and procedures. If the manufacturer's specifications requires periodic calibration of the telemetry equipment, the date and location of the last calibration or test and the name or unique employee identifier of the person performing the calibration or test must be legibly displayed on a weather-resistant sticker affixed to the outside of both the front unit and the rear unit; however, if the front unit is an integral part of the locomotive or is inaccessible, then the information may be recorded on Form FRA F6180–49A instead, provided that the serial number of the unit is recorded.

(e) The air pressure sensor contained in the end-of-train device must be tested at an interval not to exceed 368 calendar days, as specified in § 229.27(b). The date and location of the test and the name or unique employee identifier of the person performing the test must be legibly displayed on a weather-resistant marking device affixed to the outside of the unit.

■ 22. Amend § 232.603 by revising paragraphs (a), (d)(1), and (f) and adding paragraph (g) to read as follows:

§ 232.603 Design, interoperability, and configuration management requirements.

(a) *General.* A freight car or freight train equipped with an ECP brake system must, at a minimum, meet the Association of American Railroads (AAR) standards contained in the AAR Manual of Standards and Recommended Practices related to ECP brake systems listed in paragraph (g) of this section; an alternate standard approved by FRA pursuant to § 232.17; or a modified standard approved in accordance with the provisions contained in paragraph (f) of this section.

* * * * *

(d) * * *. (1) A freight car or freight train equipped with a standalone ECP brake system is excepted from the requirement in § 232.103(l) referencing AAR Standard S–469–01, ''Performance Specification for Freight Brakes.''

* * *

(f) *Incorporation by reference.* The Director of the Federal Register approves the incorporation by reference of the standards required in this section into this section in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You may inspect a copy at the Federal Railroad Administration, 1200 New Jersey Avenue SE, Washington, DC, 202–493–6300 or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email *fedreg.legal@nara.gov,* or go to: *www.archives.gov/federal-register/cfr/ibr-locations.html.* You may obtain the material from the following source(s):

(1) Association of American Railroads, 425 Third Street SW, Washington, DC 20024, telephone: (202) 639–2345, email: *publications@aar.com,* website: *https://aarpublications.com.*

(i) AAR S–4200, ''Electronically Controlled Pneumatic (ECP) Cable-Based Brake Systems—Performance Requirements,'' (Revised 2014).

(ii) AAR S–4210, ''ECP Cable-Based Brake System Cable, Connectors, and Junction Boxes—Performance Specifications,'' (Revised 2014).

(iii) AAR S–4220, ''ECP Cable-Based Brake DC Power Supply—Performance Specification,'' Version 2.0 (Revised 2002).

(iv) AAR S–4230, ''Intratrain Communication (ITC) Specification for Cable-Based Freight Train Control System,'' Version 3.0 (Revised 2014).

(v) AAR S–4240, ''ECP Brake Equipment—Approval Procedure'' (Adopted 2007).

(vi) AAR S–4250, ''Performance Requirements for ITC Controlled Cable-Based Distributed Power Systems,'' Version 2.0 (Revised 2014).

(vii) AAR S–4260, ''ECP Brake and Wire Distributed Power Interoperability Test Procedures'' (Revised 2008).

(viii) AAR S–4270, ''ECP Brake System Configuration Management'' (Adopted: 2008).

(2) [Reserved]

(g) *Modification of standards.* The AAR or other authorized representative of the railroad industry may seek modification of the industry standards identified in or approved pursuant to paragraph (f) of this section. The request for modification will be handled and shall be submitted in accordance with the modification procedures contained in § 232.307.

■ 23. Add subpart H to read as follows:

Subpart H—Tourist, Scenic, Historic, and Excursion Operations Braking Systems

Sec.

§ 232.700 Applicability.

(a) Except as provided in paragraph (b), this subpart applies to standard gage railroads.

(b) This subpart does not apply to:

(1) A railroad that operates only on track inside an installation which is not part of the general railroad system of transportation; or

(2) Rapid transit operations in an urban area that are not connected with the general railroad system of transportation.

(c) As used in this subpart, carrier means ''railroad,'' as that term is defined by 49 CFR 232.5

§ 232.701 Power brakes; minimum percentage.

On and after September 1, 1910, on all railroads used in interstate commerce, whenever, as required by the Safety Appliance Act as amended March 2, 1903, any train is operated with power or train brakes, not less than 85 percent of the cars of such train shall have their brakes used and operated by the engineer of the locomotive drawing such train, and all power-brake cars in every such train which are associated together with the 85 percent shall have their brakes so used and operated.

§ 232.702 Drawbars; standard height.

Not included in this subpart. Moved to 49 CFR part 231.

§ 232.703 Power brakes and appliances for operating power-brake systems.

Requirements are contained in 49 CFR 232.103(l).

Rules for Inspection, Testing and Maintenance of Air Brake Equipment

§ 232.710 General rules; locomotives.

(a) Air brake and hand brake equipment on locomotives including tender must be inspected and maintained in accordance with the requirements of the Locomotive Inspection and United States Safety Appliance Acts and related orders and regulations of the Federal Railroad Administrator (FRA).

(b) It must be known that air brake equipment on locomotives is in a safe and suitable condition for service.

(c) Compressor or compressors must be tested for capacity by orifice test as often as conditions require but not less frequently than required by law and orders of the FRA.

(d) Main reservoirs shall be subjected to tests periodically as required by law and orders of the FRA.

(e) Air gauges must be tested periodically as required by law and orders of the FRA, and whenever any irregularity is reported. They shall be compared with an accurate deadweight tester, or test gauge. Gauges found inaccurate or defective must be repaired or replaced.

(f)(1) All operating portions of air brake equipment together with dirt collectors and filters must be cleaned, repaired and tested as often as conditions require to maintain them in a safe and suitable condition for service, and not less frequently than required by law and orders of the FRA.

(2) On locomotives so equipped, hand brakes, parts, and connections must be inspected, and necessary repairs made as often as the service requires, with date being suitably stenciled or tagged.

(g) The date of testing or cleaning of air brake equipment and the initials of the shop or station at which the work was done shall be placed on a card displayed under transparent covering in the cab of each locomotive unit.

(h)(1) Minimum brake cylinder piston travel must be sufficient to provide proper brake shoe clearance when brakes are released.

(2) Maximum brake cylinder piston travel when locomotive is standing must not exceed the following:

TABLE 1 TO PARAGRAPH (h)

	Inches
Steam locomotives:	
Cam type of driving wheel brake	3½
Other types of driving wheel brakes	6
Engine truck brake	8
Engine trailer truck brake	8
Tender brake (truck mounted and tender bed mounted)	8
Tender brake (body mounted)	9
Locomotives other than steam:	
Driving wheel brake	6
Swivel type truck brake with brakes on more than one truck operated by one brake cylinder	7
Swivel type truck brake equipped with one brake cylinder	8
Swivel type truck brake equipped with two or more brake cylinders	6

(i)(1) Foundation brake rigging, and safety supports, where used, must be maintained in a safe and suitable condition for service. Levers, rods, brake beams, hangars and pins must be of ample strength and must not bind or foul in any way that will affect proper operation of brakes. All pins must be properly applied and secured in place with suitable locking devices. Brake shoes must be properly applied and kept approximately in line with treads of wheels or other braking surfaces.

(2) No part of the foundation brake rigging and safety supports shall be closer to the rails than specified by law and orders of the FRA.

(j)(1) Main reservoir leakage: Leakage from main air reservoir and related piping shall not exceed an average of 3 pounds per minute in a test of three minutes' duration, made after the pressure has been reduced 40 percent below maximum pressure.

(2) Brake pipe leakage: Brake pipe leakage must not exceed 5 pounds per minute after a reduction of 10 pounds has been made from brake pipe air pressure of not less than 70 pounds.

(3) Brake cylinder leakage: With a full service application of brakes, and with communication to the brake cylinders closed, brakes must remain applied not less than five minutes.

(4) The main reservoir system of each unit shall be equipped with at least one safety valve, the capacity of which shall be sufficient to prevent an accumulation of pressure of more than 10 pounds per square inch above the maximum setting of the compressor governor fixed by the chief mechanical officer of the carrier operating the locomotive.

(5) A suitable governor shall be provided that will stop and start the air compressor within 5 pounds above or below the pressures fixed.

(6) Compressor governor when used in connection with the automatic air brake system shall be so adjusted that the compressor will start when the main reservoir pressure is not less than 15 pounds above the maximum brake-pipe pressure fixed by the rules of the carrier and will not stop the compressor until the reservoir pressure has increased not less than 10 pounds.

(k) The communicating signal system on locomotives when used in passenger service must be tested and known to be in a safe and suitable condition for service before each trip.

(l) Enginemen when taking charge of locomotives must know that the brakes are in operative condition.

(m) In freezing weather drain cocks on air compressors of steam locomotives must be left open while compressors are shut off.

(n) Air pressure regulating devices must be adjusted for the following pressures:

TABLE 1 TO PARAGRAPH (n)

	Pounds
Locomotives:	
(1) Minimum brake pipe air pressure:	
Road Service	70
Switch Service	60
(2) Minimum differential between brake pipe and main reservoir air pressures, with brake valve in running position	15
(3) Safety valve for straight air brake	30–55
(4) Safety valve for LT, ET, No. 8–EL, No. 14 El, No. 6–DS, No. 6–BL and No. 6–SL equipment	30–68
(5) Safety valve for HSC and No. 24–RL equipment	30–75
(6) Reducing valve for independent or straight air brake	30–50
(7) Self-lapping portion for electro-pneumatic brake (minimum full application pressure)	50
(8) Self-lapping portion for independent air brake (full application pressure)	30–50
(9) Reducing valve for air signal	40–60
(10) Reducing valve for high-speed brake (minimum)	50
Cars:	
(11) Reducing valve for high-speed brake	58–62
(12) Safety valve for PS, LN, UC, AML, AMU and AB–1–B air brakes	58–62
(13) Safety valve for HSC air brake	58–77
(14) Governor valve for water raising system	60
(15) Reducing valve for water raising system	20–30

§ 232.711 Train air brake system tests.

(a) Supervisors are jointly responsible with inspectors, enginemen and trainmen for condition of train air brake and air signal equipment on motive power and cars to the extent that it is possible to detect defective equipment by required air tests.

(b) Communicating signal system on passenger equipment trains must be tested and known to be in a suitable condition for service before leaving terminal.

(c) Each train must have the air brakes in effective operating condition, and at no time shall the number and location of operative air brakes be less than permitted by Federal requirements. When piston travel is in excess of 10 ½ inches, the air brakes cannot be considered in effective operating condition.

(d) Condensation must be blown from the pipe from which air is taken before connecting yard line or motive power to train.

§ 232.712 Initial terminal road train airbrake tests.

(a)(1) Each train must be inspected and tested as specified in this section by a qualified person at points -

(i) Where the train is originally made up (initial terminal);

(ii) Where train consist is changed, other than by adding or removing a solid block of cars, and the train brake system remains charged; and

(iii) Where the train is received in interchange if the train consist is changed other than by:

(A) Removing a solid block of cars from the head end or rear end of train;

(B) Changing motive power;

(C) Removing or changing the caboose; or

(D) Any combination of the changes listed in paragraphs (a)(1)(iii)(A), (B), and (C).

(2) A qualified person participating in the test and inspection or who has knowledge that it was made shall notify the engineer that the initial terminal road train air brake test has been satisfactorily performed. The qualified person shall provide the notification in writing if the road crew will report for duty after the qualified person goes off duty. The qualified person also shall provide the notification in writing if the train that has been inspected is to be moved in excess of 500 miles without being subjected to another test pursuant to either this section or § 232.713 of this part.

(3) Where a carman is to perform the inspection and test under existing or future collective bargaining agreement, in those circumstances a carman alone will be considered a qualified person.

(b) Each carrier shall designate additional inspection points not more than 1,000 miles apart where intermediate inspection will be made to determine that:

(1) Brake pipe pressure leakage does not exceed five pounds per minute;

(2) Brakes apply on each car in response to a 20-pound service brake pipe pressure reduction; and

(3) Brake rigging is properly secured and does not bind or foul.

(c) Train airbrake system must be charged to required air pressure, angle cocks and cutout cocks must be properly positioned, air hose must be properly coupled and must be in condition for service. An examination must be made for leaks and necessary repairs made to reduce leakage to a minimum. Retaining valves and retaining valve pipes must be inspected and known to be in condition for service. If train is to be operated in electro-pneumatic brake operation, brake circuit cables must be properly connected.

(d)(1) After the airbrake system on a freight train is charged to within 15 pounds of the setting of the feed valve on the locomotive, but to not less than 60 pounds, as indicated by an accurate gauge at rear end of train, and on a passenger train when charged to not less than 70 pounds, and upon receiving the signal to apply brakes for test, a 15-pound brake pipe service reduction must be made in automatic brake operations, the brake valve lapped, and the number of pounds of brake pipe leakage per minute noted as indicated by brake pipe gauge, after which brake pipe reduction must be increased to full service. Inspection of the train brakes must be made to determine that angle cocks are properly positioned, that the brakes are applied on each car, that piston travel is correct, that brake rigging does not bind or foul, and that all parts of the brake equipment are properly secured. When this inspection has been completed, the release signal must be given and brakes released and each brake inspected to see that all have released.

(2) When a passenger train is to be operated in electro-pneumatic brake operation and after completion of test of brakes as prescribed by paragraph (d)(1) of this section the brake system must be recharged to not less than 90 pounds air pressure, and upon receiving the signal to apply brakes for test, a minimum 20 pounds electro-pneumatic brake application must be made as indicated by the brake cylinder gage. Inspection of the train brakes must then be made to determine if brakes are applied on each car. When this inspection has been completed, the release signal must be given and brakes released and each brake inspected to see that all have released.

(3) When the locomotive used to haul the train is provided with means for maintaining brake pipe pressure at a constant level during service application of the train brakes, this feature must be cut out during train airbrake tests.

(e) Brake pipe leakage must not exceed 5 pounds per minute.

(f)(1) At initial terminal piston travel of body-mounted brake cylinders which is less than 7 inches or more than 9 inches must be adjusted to nominally 7 inches.

(2) Minimum brake cylinder piston travel of truck-mounted brake cylinders must be sufficient to provide proper brake shoe clearance when brakes are released. Maximum piston travel must not exceed 6 inches.

(3) Piston travel of brake cylinders on freight cars equipped with other than standard single capacity brake, must be adjusted as indicated on badge plate or stenciling on car located in a conspicuous place near the brake cylinder.

(g) When test of airbrakes has been completed the engineman and conductor must be advised that train is in proper condition to proceed.

(h) During standing test, brakes must not be applied or released until proper signal is given.

(i)(1) When train airbrake system is tested from a yard test plant, an engineer's brake valve or an appropriate test device shall be used to provide increase and reduction of brake pipe air pressure or electro-pneumatic brake application and release at the same or a slower rate as with engineer's brake valve and yard test plant must be connected to the end which will be nearest to the hauling road locomotive.

(2) When yard test plant is used, the train airbrakes system must be charged and tested as prescribed by paragraphs (c) to (g) of this section inclusive, and when practicable should be kept charged until road motive power is coupled to train, after which, an automatic brake application and release test of airbrakes on rear car must be made. If train is to be operated in electro-pneumatic brake operation, this test must also be made in electro-pneumatic brake operation before proceeding.

(3) If after testing the brakes as prescribed in paragraph (i)(2) of this section the train is not kept charged until road motive power is attached, the brakes must be tested as prescribed by paragraph (d)(1) of this section and if

train is to be operated in electro-pneumatic brake operation as prescribed by paragraph (d)(2) of this section.

(j) Before adjusting piston travel or working on brake rigging, cutout cock in brake pipe branch must be closed and air reservoirs must be drained. When cutout cocks are provided in brake cylinder pipes, these cutout cocks only may be closed and air reservoirs need not be drained.

§ 232.713 Road train and intermediate terminal train air brake tests.

(a) Before motive power is detached or angle cocks are closed on a passenger train operated in either automatic or electro-pneumatic brake operation, except when closing angle cocks for cutting off one or more cars from the rear end of train, automatic air brake must be applied. After recouping, brake system must be recharged to required air pressure and before proceeding and upon receipt of proper request or signal, application and release tests of brakes on rear car must be made from locomotive in automatic brake operation. If train is to be operated in electro-pneumatic brake operation, this test must also be made in electro-pneumatic brake operation before proceeding. Inspector or trainman must determine if brakes on rear car of train properly apply and release.

(b) Before motive power is detached or angle cocks are closed on a freight train, brakes must be applied with not less than a 20-pound brake pipe reduction. After recoupling, and after angle cocks are opened, it must be known that brake pipe air pressure is being restored as indicated by a rear car gauge or device. In the absence of a rear car gauge or device, an air brake test must be made to determine that the brakes on the rear car apply and release.

(c)(1) At a point other than an initial terminal where a locomotive or caboose is changed, or where one or more consecutive cars are cut off from the rear end or head end of a train with the consist otherwise remaining intact, after the train brake system is charged to within 15 pounds of the feed valve setting on the locomotive, but not less than 60 pounds as indicated at the rear of a freight train and 70 pounds on a passenger train, a 20-pound brake pipe reduction must be made and it must be determined that the brakes on the rear car apply and release. As an alternative to the rear car brake application and release test, it shall be determined that brake pipe pressure of the train is being reduced as indicated by a rear car gauge or device and then that brake pipe pressure of the train is being restored as indicated by a rear car gauge or device.

(2) Before proceeding it must be known that brake pipe pressure as indicated at rear of freight train is being restored.

(3) On trains operating with electro-pneumatic brakes, with brake system charged to not less than 70 pounds, test must be made to determine that rear brakes apply and release properly from a minimum 20 pounds electro-pneumatic brake application as indicated by brake cylinder gauge.

(d)(1) At a point other than a terminal where one or more cars are added to a train, after the train brake system is charged to not less than 60 pounds as indicated by a gauge or device at the rear of a freight train and 70 pounds on a passenger train. A brake test must be made by a designated person as described in § 232.712(a)(1) to determine that brake pipe leakage does not exceed five (5) pounds per minute as indicated by the brake pipe gauge after a 20-pound brake pipe reduction has been made. After the test is completed, it must be determined that piston travel is correct, and the train airbrakes of these cars and on the rear car of the train apply and remain applied, until the release signal is given. As an alternative to the rear car brake application and release portion of the test, it shall be determined that brake pipe pressure of the train is being reduced as indicated by a rear car gauge or device and then that brake pipe pressure of the train is being restored as indicated by a rear car gauge or device. Cars added to a train that have not been inspected in accordance with § 232.712 (c) through (j) must be so inspected and tested at the next terminal where facilities are available for such attention.

(2)(i) At a terminal where a solid block of cars, which has been previously charged and tested as prescribed by § 232.712 (c) through (j), is added to a train, it must be determined that the brakes on the rear car of the train apply and release. As an alternative to the rear car application and release test, it shall be determined that brake pipe pressure of the train is being reduced as indicated by a rear car gauge or device and then that brake pipe pressure of the train is being restored as indicated by a rear car gauge or device.

(ii) When cars which have not been previously charged and tested as prescribed by § 232.712 (c) through (j) are added to a train, such cars may either be given inspection and tests in accordance with § 232.712 (c) through (j), or tested as prescribed by paragraph (d)(1) of this section prior to departure in which case these cars must be inspected and tested in accordance with § 232.712 (c) through (j) at next terminal.

(3) Before proceeding it must be known that the brake pipe pressure at the rear of freight train is being restored.

(e)(1) Transfer train and yard train movements not exceeding 20 miles, must have the air brake hose coupled between all cars, and after the brake system is charged to not less than 60 pounds, a 15-pound service brake pipe reduction must be made to determine that the brakes are applied on each car before releasing and proceeding.

(2) Transfer train and yard train movements exceeding 20 miles must have brake inspection in accordance with § 232.712 (c)–(j).

(f) The automatic air brake must not be depended upon to hold a locomotive, cars or train, when standing on a grade, whether locomotive is attached or detached from cars or train. When required, a sufficient number of hand brakes must be applied to hold train, before air brakes are released. When ready to start, hand brakes must not be released until it is known that the air brake system is properly charged.

(g) As used in this section, device means a system of components designed and inspected in accordance with § 232.719.

(h) When a device is used to comply with any test requirement in this section, the phrase brake pipe pressure of the train is being reduced means a pressure reduction of at least five pounds and the phrase brake pipe pressure of the train is being restored means a pressure increase of at least five (5) pounds.

§ 232.714 Inbound brake equipment inspection.

(a) At points where inspectors are employed to make a general inspection of trains upon arrival at terminals, visual inspection must be made of retaining valves and retaining valve pipes, release valves and rods, brake rigging, safety supports, hand brakes, hose and position of angle cocks and make necessary repairs or mark for repair tracks any cars to which yard repairs cannot be promptly made.

(b) Freight trains arriving at terminals where facilities are available and at which special instructions provide for immediate brake inspection and repairs, trains shall be left with air brakes applied by a service brake pipe reduction of 20 pounds so that inspectors can obtain a proper check of the piston travel. Trainmen will not close any angle cock or cut the locomotive off until the 20-pound service reduction has been made. Inspection of the brakes and needed

repairs should be made as soon thereafter as practicable.

§ 232.715 Double heading and helper service.

(a) When more than one locomotive is attached to a train, the engineman of the leading locomotive shall operate the brakes. On all other motive power units in the train the brake pipe cutout cock to the brake valve must be closed, the maximum main reservoir pressure maintained and brake valve handles kept in the prescribed position. In case it becomes necessary for the leading locomotive to give up control of the train short of the destination of the train, a test of the brakes must be made to see that the brakes are operative from the automatic brake valve of the locomotive taking control of the train.

(b) The electro-pneumatic brake valve on all motive power units other than that which is handling the train must be cut out, handle of brake valve kept in the prescribed position, and air compressors kept running if practicable.

§ 232.716 Running tests.

When motive power, engine crew or train crew has been changed, angle cocks have been closed except for cutting off one or more cars from the rear end of train or electro-pneumatic brake circuit cables between power units and/or cars have been disconnected, running test of train air brakes on passenger train must be made, as soon as speed of train permits, by use of automatic brake if operating in automatic brake operation or by use of electro-pneumatic brake if operating in electro-pneumatic brake operation. Steam or power must not be shut off unless required and running test must be made by applying train air brakes with sufficient force to ascertain whether or not brakes are operating properly. If air brakes do not properly operate, train must be stopped, cause of failure ascertained and corrected and running test repeated.

§ 232.717 Freight and passenger train car brakes.

(a)(1) When a freight car having brake equipment due for periodic attention is on shop or repair tracks where facilities are available for making air brake repairs, brake equipment must be given attention in accordance with the requirements of Rule 4 of the 2020 Field Manual of the AAR Interchange Rules (AAR Field Manual); or an alternative procedure approved by FRA under paragraph (d) of this section. Brake equipment shall then be tested by use of a single car testing device as prescribed by§ 232.305.

(2)(i) When a freight car having an air brake defect is on a shop or repair track, brake equipment must be tested by use of a single car testing device as prescribed by § 232.305.

(ii) All freight cars on shop or repair tracks shall be tested to determine that the air brakes apply and release. Piston travel on a standard body mounted brake cylinder which is less than 7 inches or more than 9 inches must be adjusted to nominally 7 inches. Piston travel of brake cylinders on all freight cars equipped with other than standard single capacity brake, must be adjusted as indicated on badge plate or stenciling on car located in a conspicuous place near brake cylinder. After piston travel has been adjusted and with brakes released, sufficient brake shoe clearance must be provided.

(iii) When a car equipped for use in passenger train service not due for periodical air brake repairs, as indicated by stenciled or recorded cleaning dates, is on shop or repair tracks, brake equipment must be tested by use of single car testing device as prescribed by the applicable standards referenced in § 232.305 or by the American Public Transportation Association (APTA) standard referenced in § 238.311(a) of this chapter. Piston travel of brake cylinders must be adjusted if required, to the standard travel for that type of brake cylinder. After piston travel has been adjusted and with brakes released, sufficient brake shoe clearance must be provided.

(iv) Before a car is released from a shop or repair track, it must be known that brake pipe is securely clamped, angle cocks in proper position with suitable clearance, valves, reservoirs and cylinders tight on supports and supports securely attached to car.

(b)(1) Brake equipment on cars other than passenger cars must be cleaned, repaired, lubricated and tested (''COT&S'') as often as required to maintain it in a safe and suitable condition for service but not less frequently than as required by Rule 4 of the AAR Field Manual.

(2) Brake equipment on passenger cars must be cleaned, repaired, lubricated and tested (''COT&S'') as often as necessary to maintain it in a safe and suitable condition for service but not less frequently than as required in Standard S–4045–13 in the Manual of Standards and Recommended Practices of the AAR or an alternative procedure approved by FRA pursuant to § 232.717(d).

(c) For a brake system once, but no longer, included in AAR's current Code of Rules or Code of Tests (presently known as the Field Manual of the AAR Interchange Rules or the Manual of Standards and Recommended Practices), the brake system must be maintained in a safe and suitable condition for service according to a railroad's written maintenance plan. The maintenance plan, including its COT&S component and a periodic attention schedule, must be based upon a standard appropriate to the equipment. The railroad must comply with and make its written maintenance plan available to FRA upon request.

(d) *Modification of standards.* The AAR or other authorized representative of the railroad industry may seek modification of the industry standards identified in or approved pursuant to paragraph (a) of this section. The request for modification will be handled and must be submitted in accordance with the modification procedures contained in § 232.307 of this part.

(e) *Incorporation by Reference.* The Director of the Federal Register approves the incorporation by reference of the standards required in this section into this section in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You may inspect a copy of the material at the Federal Railroad Administration, Docket Clerk, 1200 New Jersey Avenue SE, Washington, DC 20590 (telephone: 855–368–4200). You may also inspect the material at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email *fedreg.legal@nara.gov,* or go to: *www.archives.gov/federal-register/cfr/ibr-locations.html.* You may obtain the material from the following source(s):

(1) Association of American Railroads (AAR), 425 Third Street SW, Washington, DC 20024, telephone: (202) 639–2345, email: *publications@aar.com,* website: *https://aarpublications.com.*

(i) Rule 4 of the ''2020 Field Manual of the AAR Interchange Rules''.

(ii) AAR Standard S–4045–13, ''Passenger Equipment Maintenance Requirements,'' 2013.

(2) [Reserved]

§ 232.719 End-of-train devices.

Requirements are contained in Subpart E of this rule.

■ 24. Remove appendices A and B.

Issued in Washington, DC.

Ronald L. Batory,

Administrator.

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