

may increase the 5 mile per hour over-speed restriction only with approval of FRA and based upon verifiable data and research.

(k) A railroad operating a train with a brake system that includes dynamic brakes shall adopt and comply with specific knowledge, skill, and ability criteria to ensure that its locomotive engineers are fully trained in the operating rules prescribed by paragraph (j) of this section. The railroad shall incorporate such criteria into its locomotive engineer certification program pursuant to Part 240 of this chapter.

§ 232.111 Train handling information.

(a) A railroad shall adopt and comply with written procedures to ensure that a train crew employed by the railroad is given accurate information on the condition of the train brake system and train factors affecting brake system performance and testing when the crew takes over responsibility for the train. 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 shall be maintained in the cab of the controlling locomotive.

(b) The procedures shall require that each train crew taking charge of a train be informed of:

(1) The total weight and length of the train, based on the best information available to the railroad;

(2) Any special weight distribution that would require special train handling procedures;

(3) The number and location of cars with cut-out or otherwise inoperative brakes and the location where they will be repaired;

(4) If a Class I or Class IA brake test is required prior to the next crew change point, the location at which that test shall be performed; and

(5) Any train brake system problems encountered by the previous crew of the train.

Subpart C—Inspection and Testing Requirements

§ 232.201 Scope.

This subpart contains the inspection and testing requirements for brake systems used in freight and other non-passenger trains. This subpart also contains general training requirements for railroad and contract personnel used to perform the required inspections and tests.

§ 232.203 Training requirements.

(a) Each railroad and each contractor shall adopt and comply with a training, qualification, and designation program for its employees that perform brake system inspections, tests, or maintenance. For purposes of this section, a “contractor” is defined as a person under contract with the railroad or car owner. The records required by this section may be maintained either electronically or in writing.

(b) As part of this program, the railroad or contractor shall:

(1) Identify the tasks related to the inspection, testing, and maintenance of the brake system required by this part that must be performed by the railroad or contractor and identify the skills and knowledge necessary to perform each task.

(2) Develop or incorporate a training curriculum that includes both classroom and “hands-on” lessons designed to impart the skills and knowledge identified as necessary to perform each task. The developed or incorporated training curriculum shall specifically address the Federal regulatory requirements contained in this part that are related to the performance of the tasks identified.

(3) Require all employees to successfully complete a training curriculum that covers the skills and knowledge the employee will need to possess in order to perform the tasks required by this part that the employee will be responsible for performing, including the specific Federal regulatory requirements contained in this part related to

the performance of a task for which the employee will be responsible;

(4) Require all employees to pass a written or oral examination covering the skills and knowledge the employee will need to possess in order to perform the tasks required by this part that the employee will be responsible for performing, including the specific Federal regulatory requirements contained in this part related to the performance of a task for which the employee will be responsible for performing;

(5) Require all employees to individually demonstrate “hands-on” capability by successfully applying the skills and knowledge the employee will need to possess in order to perform the tasks required by this part that the employee will be responsible for performing to the satisfaction of the employee’s supervisor or designated instructor;

(6) Consider training and testing, including efficiency testing, previously received by an employee in order to meet the requirements contained in paragraphs (b)(3) through (b)(5) of this section; provided, such training and testing can be documented as required in paragraph (e) of this section;

(7) Require supervisors to exercise oversight to ensure that all the identified tasks are performed in accordance with the railroad’s written procedures and the specific Federal regulatory requirements contained in this part;

(8) Require periodic refresher training at an interval not to exceed three years that includes classroom and “hands-on” training, as well as testing. Efficiency testing may be used to meet the “hands-on” portion of this requirement; provided, such testing is documented as required in paragraph (e) of this section; and

(9) Add new brake systems to the training, qualification and designation program prior to its introduction to revenue service.

(c) A railroad that operates trains required to be equipped with a two-way end-of-train telemetry device pursuant to Subpart E of this part, and each contractor that maintains such devices shall adopt and comply with a training program which specifically addresses the testing, operation, and maintenance of two-way end-of-train devices

for employees who are responsible for the testing, operation, and maintenance of the devices.

(d) A railroad that operates trains under conditions that require the setting of air brake pressure retaining valves shall adopt and comply with a training program which specifically addresses the proper use of retainers for employees who are responsible for using or setting retainers.

(e) A railroad or contractor shall maintain adequate records to demonstrate the current qualification status of all of its personnel assigned to inspect, test, or maintain a train brake system. The records required by this paragraph may be maintained either electronically or in writing and shall be provided to FRA upon request. These records shall include the following information concerning each such employee:

(1) The name of the employee;

(2) The dates that each training course was completed;

(3) The content of each training course successfully completed;

(4) The employee’s scores on each test taken to demonstrate proficiency;

(5) A description of the employee’s “hands-on” performance applying the skills and knowledge the employee needs to possess in order to perform the tasks required by this part that the employee will be responsible for performing and the basis for finding that the skills and knowledge were successfully demonstrated;

(6) A record that the employee was notified of his or her current qualification status and of any subsequent changes to that status;

(7) The tasks required to be performed under this part which the employee is deemed qualified to perform; and

(8) Identification of the person(s) determining that the employee has successfully completed the training necessary to be considered qualified to perform the tasks identified in paragraph (e)(7) of this section.

(9) The date that the employee’s status as qualified to perform the tasks identified in paragraph (e)(7) of this section expires due to the need for refresher training.

(f) A railroad or contractor shall adopt and comply with a plan to periodically assess the effectiveness of its training program. One method of validation and assessment could be through the use of efficiency tests or periodic review of employee performance.

§ 232.205 Class I brake test-initial terminal inspection.

(a) Each train and each car in the train shall receive a Class I brake test as described in paragraph (b) of this section by a qualified person, as defined in § 232.5, at the following points:

(1) The location where the train is originally assembled (“initial terminal”);

(2) A location where the train consist is changed other than by:

(i) Adding a single car or a solid block of cars;

(ii) Removing a single car or a solid block of cars;

(iii) Removing cars determined to be defective under this chapter; or

(iv) A combination of the changes listed in paragraphs (a)(2)(i) through (a)(2)(iii) of this section (See §§ 232.209 and 232.211 for requirements related to the pick-up of cars and solid blocks of cars en route.);

(3) A location where the train is off air for a period of more than four hours;

(4) A location where a unit or cycle train has traveled 3,000 miles since its last Class I brake test; and

(5) A location where the train is received in interchange if the train consist is changed other than by:

(i) Removing a car or a solid block of cars from the train;

(ii) Adding a previously tested car or a previously tested solid block of cars to the train;

(iii) Changing motive power;

(iv) Removing or changing the caboose; or

(v) Any combination of the changes listed in paragraphs (a)(5) of this section.

(A) If changes other than those contained in paragraph (a)(5)(i)–(a)(5)(v) of this section are made to the train consist when it is received in interchange and the train will move 20 miles or less, then the railroad may conduct a

brake test pursuant to § 232.209 on those cars added to the train.

(B) [Reserved]

(b) A Class I brake test of a train shall consist of the following tasks and requirements:

(1) Brake pipe leakage shall not exceed 5 psi per minute or air flow shall not exceed 60 cubic feet per minute (CFM).

(i) *Leakage Test.* The brake pipe leakage test shall be conducted as follows:

(A) Charge the air brake system to the pressure at which the train will be operated, and the pressure at the rear of the train shall be within 15 psi of the pressure at which the train will be operated, but not less than 75 psi, as indicated by an accurate gauge or end-of-train device at the rear end of train;

(B) Upon receiving the signal to apply brakes for test, make a 20-psi brake pipe service reduction;

(C) If the locomotive used to perform the leakage test is equipped with a means for maintaining brake pipe pressure at a constant level during a 20-psi brake pipe service reduction, this feature shall be cut out during the leakage test; and

(D) With the brake valve lapped and the pressure maintaining feature cut out (if so equipped) and after waiting 45–60 seconds, note the brake pipe leakage as indicated by the brake-pipe gauge in the locomotive, which shall not exceed 5 psi per minute.

(ii) *Air Flow Method Test.* When a locomotive is equipped with a 26-L brake valve or equivalent pressure maintaining locomotive brake valve, a railroad may use the Air Flow Method Test as an alternate to the brake pipe leakage test. The Air Flow Method (AFM) Test shall be performed as follows:

(A) Charge the air brake system to the pressure at which the train will be operated, and the pressure at the rear of the train shall be within 15 psi of the pressure at which the train will be operated, but not less than 75 psi, as indicated by an accurate gauge or end-of-train device at the rear end of train; and

(B) Measure air flow as indicated by a calibrated AFM indicator, which shall not exceed 60 cubic feet per minute (CFM).

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

(2) The inspector shall position himself/herself, taking positions on each side of each car sometime during the inspection process, so as to be able to examine and observe the functioning of all moving parts of the brake system on each car in order to make the determinations and inspections required by this section. A "roll-by" inspection of the brake release as provided for in paragraph (b)(8) of this section shall not constitute an inspection of that side of the train for purposes of this requirement;

(3) The train brake system shall be charged to the pressure at which the train will be operated, and the pressure at the rear of the train shall be within 15 psi of the pressure at which the train will be operated, but not less than 75 psi, angle cocks and cutout cocks shall be properly positioned, air hoses shall be properly coupled and shall not kink, bind, or foul or be in any other condition that restricts air flow. An examination must be made for leaks and necessary repairs made to reduce leakage to the required minimum. Retaining valves and retaining valve pipes shall be inspected and known to be in proper condition for service;

(4) The brakes on each car and shall apply in response to a 20-psi brake pipe service reduction and shall remain applied until a release of the air brakes has been initiated by the controlling locomotive or yard test device. The brakes shall not be applied or released until the proper signal is given. A car found with brakes that fail to apply or remain applied may be retested and remain in the train if the retest is conducted at the pressure the train will be operated from the controlling locomotive, head end of the consist, or a suitable test device, as described in § 232.217(a) of this part, positioned at one end of the car(s) being retested and the brakes remain applied until a release is initiated after a period which is

no less than three minutes. If the retest is performed at the car(s) being retested with a suitable device, the compressed air in the car(s) shall be depleted prior to disconnecting the hoses between the car(s) to perform the retest;

(5) For cars equipped with 8½-inch or 10-inch diameter brake cylinders, piston travel shall be within 7 to 9 inches. If piston travel is found to be less than 7 inches or more than 9 inches, it must be adjusted to nominally 7½ inches. For cars not equipped with 8½-inch or 10-inch diameter brake cylinders, piston travel shall be within the piston travel stenciled or marked on the car or badge plate. Minimum brake cylinder piston travel of truck-mounted brake cylinders must be sufficient to provide proper brake shoe clearance when the brakes are released. Piston travel must be inspected on each freight car while the brakes are applied;

(6) Brake rigging shall be properly secured and shall not bind or foul or otherwise adversely affect the operation of the brake system;

(7) All parts of the brake equipment shall be properly secured. On cars where the bottom rod passes through the truck bolster or is secured with cotter keys equipped with a locking device to prevent their accidental removal, bottom rod safety supports are not required; and

(8) When the release is initiated by the controlling locomotive or yard test device, the brakes on each freight car shall be inspected to verify that it did release; this may be performed by a "roll-by" inspection. If a "roll-by" inspection of the brake release is performed, train speed shall not exceed 10 MPH and the qualified person performing the "roll-by" inspection shall communicate the results of the inspection to the operator of the train. The operator of the train shall note successful completion of the release portion of the inspection on the record required in paragraph (d) of this section.

(c) Where a railroad's collective bargaining agreement provides that a carman is to perform the inspections and tests required by this section, a carman alone will be considered a qualified person. In these circumstances, the

railroad shall ensure that the carman is properly trained and designated as a qualified person or qualified mechanical inspector pursuant to the requirements of this part.

(d) A railroad shall notify the locomotive engineer that the Class I brake test was satisfactorily performed 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 shall be retained in the cab of the controlling locomotive until the train reaches its destination. The written or electronic record shall 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.

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

(f) Except as provided in § 232.209, each car or solid block of cars, as defined in § 232.5, that has not received a Class I brake test or that has been off air for more than four hours and that is added to a train shall receive a Class I test when added to a train. A Class III brake test as described in § 232.211 shall then be performed on the entire new train.

§ 232.207 Class IA brake tests—1,000-mile inspection.

(a) Except as provided in § 232.213, each train shall receive a Class IA brake test performed by a qualified person, as defined in § 232.5, at a location that is not more than 1,000 miles from the point where any car in the train last received a Class I or Class IA brake test. The most restrictive car or block of cars in the train shall determine the location of this test.

(b) A Class IA brake test of a train shall consist of the following tasks and requirements:

(1) Brake pipe leakage shall not exceed 5 psi per minute or air flow shall not exceed 60 cubic feet per minute (CFM). The brake pipe leakage test or air flow method test shall be conducted pursuant to the requirements contained in § 232.205(b)(1);

(2) The inspector shall position himself/herself, taking positions on each side of each car sometime during the inspection process, so as to be able to examine and observe the functioning of all moving parts of the brake system on each car in order to make the determinations and inspections required by this section;

(3) The air brake system shall be charged to the pressure at which the train will be operated, and the pressure at the rear of the train shall be within 15 psi of the pressure at which the train will be operated, but not less than 75 psi, as indicated by an accurate gauge or end-of-train device at rear end of train;

(4) The brakes on each car shall apply in response to a 20-psi brake pipe service reduction and shall remain applied until the release is initiated by the controlling locomotive. A car found with brakes that fail to apply or remain applied may be retested and remain in the train if the retest is conducted as prescribed in § 232.205(b)(4); otherwise, the defective equipment may only be moved pursuant to the provisions contained in § 232.15, if applicable;

(5) Brake rigging shall be properly secured and shall not bind or foul or otherwise adversely affect the operation of the brake system; and

(6) All parts of the brake equipment shall be properly secured.

(c) A railroad shall designate the locations where Class IA brake tests will be performed, and the railroad shall furnish to the Federal Railroad Administration upon request a description of each location designated. A railroad shall notify FRA's Associate Administrator for Safety in writing 30 days prior to any change in the locations designated for such tests and inspections.

(1) Failure to perform a Class IA brake test on a train at a location designated pursuant to this paragraph constitutes a failure to perform a proper Class IA brake test if the train is due for such a test at that location.

(2) 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 a Class IA brake test is performed to a location not on the railroad's list of designated locations for performing Class IA 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.

§ 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 shall 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 four hours;

(2) Each solid block of cars, as defined in § 232.5, that is comprised of cars from more than one previous train; and

(3) Each solid block of cars that is comprised of cars from only one previous train but the cars of which have not 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.

(b) A Class II brake test shall consist of the following tasks and requirements:

(1) Brake pipe leakage shall not exceed 5 psi per minute or air flow shall not exceed 60 cubic feet per minute (CFM). The brake pipe leakage test or air flow method test shall be conducted

on the entire train pursuant to the requirements contained in § 232.205(b)(1);

(2) The air brake system shall be charged to the pressure at which the train will be operated, and the pressure at the rear of the train shall be within 15 psi of the pressure at which the train will be operated, but not less than 75 psi, as indicated by an accurate gauge or end-of-train device at the rear end of train;

(3) The brakes on each car added to the train and on the rear car of the train shall be inspected to ensure that they apply in response to a 20-psi brake pipe service reduction and remain applied until the release is initiated from the controlling locomotive. A car found with brakes that fail to apply or remain applied may be retested and remain in the train if the retest is conducted as prescribed in § 232.205(b)(4); otherwise, the defective equipment may only be moved pursuant to the provisions contained in § 232.15, if applicable;

(4) When the release is initiated, the brakes on each car added to the train and on the rear car of the train shall be inspected to verify that they did release; this may be performed by a "roll-by" inspection. If a "roll-by" inspection of the brake release is performed, train speed shall not exceed 10 MPH, and the qualified person performing the "roll-by" inspection shall communicate the results of the inspection to the operator of the train; and

(5) Before the train proceeds the operator of the train shall know that the brake pipe pressure at the rear of the train is being restored.

(c) As an alternative to the rear car brake application and release portion of the test, the operator of the train shall determine that brake pipe pressure of the train is being reduced, as indicated by a rear car gauge or end-of-train telemetry device, and then that the brake pipe pressure of the train is being restored, as indicated by a rear car gauge or end-of-train telemetry device. (When an end-of-train telemetry device is used to comply with any test requirement in this part, the phrase "brake pipe pressure of the train is being reduced" means a pressure reduction of at least 5 psi, and the phrase "brake pipe pressure of the train is

being restored" means a pressure increase of at least 5 psi). If an electronic communication link between a controlling locomotive and a remotely controlled locomotive attached to the rear end of a train is utilized to determine that brake pipe pressure is being restored, the operator of the train shall know that the air brakes function as intended on the remotely controlled locomotive.

(d) Each car or solid block of cars that receives a Class II brake test pursuant to this section when added to the train shall receive a Class I brake test at the next forward location where facilities are available for performing such a test. A Class III brake test as described in § 232.211 shall then be performed on the entire train.

§ 232.211 Class III brake tests-trainline continuity inspection.

(a) A Class III brake test shall be performed on a train by a qualified person, as defined in § 232.5, to test the train brake system when the configuration of the train has changed in certain ways. In particular, a Class III brake test shall be performed at the location where any of the following changes in the configuration of the train occur:

(1) Where a locomotive or a caboose is changed;

(2) Where a car or a block of cars is removed from the train with the consist otherwise remaining intact;

(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 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 that has not been off air for more than four hours is added to a train;

(4) 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 four hours is added to a train; or

(5) Whenever the continuity of the brake pipe is broken or interrupted.

(b) A Class III brake test shall consist of the following tasks and requirements:

(1) The train brake system shall be charged to the pressure at which the train will be operated, and the pressure at the rear of the train shall be within 15 psi of the pressure at which the train will be operated, but not less than 75 psi, or 60 psi for transfer trains, as indicated at the rear of the train by an accurate gauge or end-of-train device;

(2) The brakes on the rear car of the train shall apply in response to a 20-psi brake pipe service reduction and shall remain applied until the release is initiated by the controlling locomotive;

(3) When the release is initiated, the brakes on the rear car of the train shall be inspected to verify that it did release; and

(4) Before proceeding the operator of the train shall know that the brake pipe pressure at the rear of freight train is being restored.

(c) As an alternative to the rear car brake application and release portion of the test, it shall be determined that the brake pipe pressure of the train is being reduced, as indicated by a rear car gauge or end-of-train telemetry device, and then that the brake pipe pressure of the train is being restored, as indicated by a rear car gauge or end-of-train telemetry device. If an electronic or radio communication link between a controlling locomotive and a remotely controlled locomotive attached to the rear end of a train is utilized to determine that brake pipe pressure is being restored, the operator of the train shall know that the air brakes function as intended on the remotely controlled locomotive.

§ 232.213 Extended haul trains.

(a) 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. In order for a railroad to designate a train as an extended haul train, all of the following requirements must be met:

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(1) The railroad must designate the train in writing to FRA's Associate Administrator for Safety. This designation must include the following:

(i) The train identification symbol or identification of the location where extended haul trains will originate and a description of the trains that will be operated as extended haul trains from those locations;

(ii) The origination and destination points for the train;

(iii) The type or types of equipment the train will haul; and

(iv) The locations where all train brake and mechanical inspections and tests will be performed.

(2) A Class I brake test pursuant to §232.205 shall be performed at the initial terminal for the train by a qualified mechanical inspector as defined in §232.5.

(3) A freight car inspection pursuant to part 215 of this chapter shall be performed at the initial terminal for the train and shall be performed by an inspector designated under §215.11 of this chapter.

(4) All cars having conditions not in compliance with part 215 of this chapter at the initial terminal for the train shall be either repaired or removed from the train. Except for a car developing such a condition en route, no car shall be moved pursuant to the provisions of §215.9 of this chapter in the train.

(5) The train shall 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.

(i) Cars added to the train en route shall be inspected pursuant to the requirements contained in paragraphs (a)(2) through (a)(5) of this section at the location where they are added to the train.

(ii) Cars set out of the train en route shall be inspected pursuant to the requirements contained in paragraph (a)(6) of this section at the location where they are set out of the train.

(6) At the point of destination, if less than 1,500 miles from the train's initial terminal, or at the point designated by the railroad pursuant to paragraph (a)(1)(iv) of this section, not to exceed 1,500 miles, an inbound inspection of

the train shall be conducted by a qualified mechanical inspector to identify any defective, inoperative, or ineffective brakes or any other condition not in compliance with this part as well as any conditions not in compliance with part 215 and part 231 of this chapter.

(7) The railroad shall maintain a record of all defective, inoperative, or ineffective brakes as well as any conditions not in compliance with part 215 and part 231 of this chapter discovered at anytime during the movement of the train. These records shall be retained for a period of one year and made available to FRA upon request. The records required by this section may be maintained either electronically or in writing.

(8) In order for an extended haul train to proceed beyond 1,500 miles, the following requirements shall be met:

(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 shall be conducted pursuant to §232.205 to ensure 100 percent effective and operative brakes. The inbound inspection required by paragraph (a)(6) of this section may be used to meet this requirement provided it encompasses all the inspection elements contained in §232.205.

(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 shall meet all the requirements contained in paragraphs (a)(1) through (a)(7) of this section. Such trains shall 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 shall either be repaired or removed from the train. The inbound inspection required by paragraph (a)(6) of this section may be used to meet these inspection requirements provided it encompasses all the inspection elements contained in paragraphs (a)(2) through (a)(4) of this section.

(9) FRA inspectors shall have physical access to visually observe all brake and freight car inspections and tests required by this section.

(b) Failure to comply with any of the requirements contained in paragraph (a) of this section will be considered an improper movement of a designated priority train for which appropriate civil penalties may be assessed as outlined in Appendix A to this part. Furthermore, FRA's Associate Administrator for Safety may revoke a railroad's ability to designate any or all trains as extended haul trains for repeated or willful noncompliance with any of the requirements contained in this section. Such a determination will be made in writing and will state the basis for such action.

§ 232.215 Transfer train brake tests.

(a) A transfer train, as defined in § 232.5, shall receive a brake test performed by a qualified person, as defined in § 232.5, that includes the following:

(1) The air brake hoses shall be coupled between all freight cars;

(2) After the brake system is charged to not less than 60 psi as indicated by an accurate gauge or end-of-train device at the rear of the train, a 15-psi service brake pipe reduction shall be made; and

(3) An inspection shall be made to determine that the brakes on each car apply and remain applied until the release is initiated by the controlling locomotive. A car found with brakes that fail to apply or remain applied may be retested and remain in the train if the retest is conducted as prescribed in § 232.205(b)(4); otherwise, the defective equipment may only be moved pursuant to the provisions contained in § 232.15, if applicable.

(b) Cars added to transfer trains en route shall be inspected pursuant to the requirements contained in paragraph (a) of this section at the location where the cars are added to the train.

(c) If a train's movement will exceed 20 miles or is not a transfer train as defined in § 232.5, the train shall receive a Class I brake test in accordance with § 232.205 prior to departure.

§ 232.217 Train brake tests conducted using yard air.

(a) When a train air brake system is tested from a yard air source, an engineer's brake valve or a suitable test device shall be used to provide any increase or reduction of brake pipe air pressure at the same, or slower, rate as an engineer's brake valve.

(b) The yard air test device must be connected to the end of the train or block of cars that will be nearest to the controlling locomotive. However, if the railroad adopts and complies with written procedures to ensure that potential overcharge conditions to the train brake system are avoided, the yard air test device may be connected to other than the end nearest to the controlling locomotive.

(c) Except as provided in this section, when a yard air is used the train air brake system must be charged and tested as prescribed by § 232.205(b) and when practicable should be kept charged until road motive power is coupled to train, after which, a Class III brake test shall be performed as prescribed by § 232.211.

(1) If the cars are off air for more than four hours, these cars shall be retested in accordance with § 232.205(b) through (e).

(2) At a minimum, yard air pressure shall be 60 psi at the end of the consist or block of cars opposite from the yard test device and shall be within 15 psi of the regulator valve setting on yard test device.

(3) If the air pressure of the yard test device is less than the pressure at which the train will be operated, then a leakage or air flow test shall be conducted at the operating pressure of the train when the locomotives are attached in accordance with § 232.205(b)(1).

(d) Mechanical yard air test devices and gauges shall be calibrated every 92 days. Electronic yard test devices and gauges shall be calibrated annually. Mechanical and electronic yard air test devices and gauges shall be calibrated so that they are accurate to within ± 3 psi.

(e) If used to test a train, a yard air test device and any yard air test equipment shall be accurate and function as intended.

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§ 232.219 Double heading and helper service.

(a) When more than one locomotive is attached to a train, the engineer of the controlling locomotive shall operate the brakes. In case it becomes necessary for the controlling locomotive to give up control of the train short of the destination of the train, a Class III brake test pursuant to § 232.211 shall be made to ensure that the brakes are operative from the automatic brake valve of the locomotive taking control of the train.

(b) When one or more helper locomotives are placed in a train, a visual inspection shall be made of each helper locomotive brake system to determine that the brake system operates as intended in response to a 20-psi reduction initiated from the controlling locomotive of the train. A helper locomotive with inoperative or ineffective brakes shall be repaired prior to use or removed from the train.

(c) If a helper locomotive utilizes a Helper Link device or a similar technology, the locomotive and device shall be equipped, designed, and maintained as follows:

(1) The locomotive engineer shall be notified by a distinctive alarm of any loss of communication between the device and the two-way end-of-train device of more than 25 seconds;

(2) A method to reset the device shall be provided in the cab of the helper locomotive that can be operated from the engineer's usual position during operation of the locomotive;

(3) The device shall be tested for accuracy and calibrated if necessary according to the manufacturer's specifications and procedures every 365 days. This shall include testing radio frequencies and modulation of the device. A legible record of the date and location of the last test or calibration shall be maintained with the device.

Subpart D—Periodic Maintenance and Testing Requirements

§ 232.301 Scope.

This subpart contains the periodic brake system maintenance and testing requirements for equipment used in freight and other non-passenger trains.

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§ 232.303 General requirements.

(a) *Definitions.* The following definitions are intended solely for the purpose of identifying what constitutes a shop or repair track under this subpart.

(1) *Shop or repair track* means:

(i) A fixed repair facility or track designated by the railroad as a shop or repair track;

(ii) A fixed repair facility or track which is regularly and consistently used to perform major repairs;

(iii) track which is used at a location to regularly and consistently perform both minor and major repairs where the railroad has not designated a certain portion of that trackage as a repair track;

(iv) A track designated by a railroad as a track where minor repairs will be conducted or used by a railroad to regularly and consistently perform minor repairs during the period when the track is used to conduct major repairs; however, such trackage is considered a shop or repair track only for each car receiving major repairs on such trackage and not for a car receiving only minor repairs; and

(v) The facilities and tracks identified in paragraphs (a)(1)(i) through (a)(1)(iv) shall be considered shop or repair tracks regardless of whether a mobile repair vehicle is used to conduct the repairs.

(2) *Major repair* means a repair of such a nature that it would normally require greater than four man-hours to accomplish or would involve the use of specialized tools and equipment. Major repairs would include such things as coupler replacement, draft gear repair, and repairs requiring the use of an air jack.

(3) *Minor repair* means repairs, other than major repairs, that can be accomplished in a short period of time with limited tools and equipment. Minor repairs would include such things as safety appliance straightening, handhold replacement, air hose replacement, lading adjustment, and coupler knuckle or knuckle pin replacement.

(b) A car on a shop or repair track shall be tested to determine that the air brakes apply and remain applied until a release is initiated.

(c) A car on a shop or repair track shall have its piston travel inspected.