

DEPARTMENT OF TRANSPORTATION**Federal Railroad Administration****49 CFR Part 234**

[FRA Docket No. RSGC-5; Notice No. 8]

RIN 2130-AA97

Grade Crossing Signal System Safety

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

ACTION: Interim final rule amendments.

DATES: This interim final rule is effective August 19, 1996.

Written comments concerning this rule must be filed no later than July 22, 1996.

SUMMARY: FRA is amending the final rule requiring that railroads comply with specific maintenance, inspection, and testing requirements for active highway-rail grade crossing warning systems. The final rule being amended also requires that railroads take specific and timely actions to protect the traveling public and railroad employees from the hazards posed by malfunctioning highway-rail grade crossing warning systems. The amendments issued today are technical corrections which clarify the rule which was published on September 30, 1994.

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SUPPLEMENTARY INFORMATION:**Background**

On September 30, 1994, FRA published a final rule (59 FR 50086) requiring that railroads comply with specific maintenance, inspection, and testing requirements for active highway-rail grade crossing warning systems. The final rule also requires that railroads take specific and timely actions to protect the traveling public and railroad employees from the hazards posed by malfunctioning highway-rail grade crossing warning systems.

Because maintenance, inspection, and testing and timely response to warning device malfunctions is a new regulatory field, actual experience under the new final regulations is invaluable in determining where the regulations are working and where they need to be clarified or revised. Shortly after the

regulations were issued, an FRA Technical Resolution Committee (TRC) met to discuss the regulations, their interpretation and implementation. Included in the TRC were FRA signal and train control specialists from across the country along with headquarters staff. Representatives from labor and management (which had earlier in the regulatory process submitted a proposal which became the basis for the maintenance and inspection portion of the final rule) were invited to attend certain sessions as non-voting members to offer their perspective and expertise to the group, together with representatives of two States active in the State Participation Program. Although the purpose of this TRC was to develop the appropriate application and interpretation of the final rule, the discussion, together with other lessons learned during implementation, also indicated the need to clarify certain portions of the regulatory text. Additionally, the American Short Line Railroad Association, the Brotherhood of Railroad Signalmen, and the Association of American Railroads jointly filed a Petition for Reconsideration with FRA requesting that FRA stay enforcement of certain sections of the final rule (§§ 234.215 and 234.223) pending further consideration of those provisions. Subsequent to the joint filing, FRA issued an Interim Policy Manual addressing, among others, the issues and questions raised by the petitioners. FRA granted the petition for reconsideration although it did not agree to stay enforcement since enforcement issues had been addressed in the Interim Policy Manual. This notice is in part a response to the joint petition for reconsideration.

FRA has not provided prior notice and request for public comment prior to making the amendments contained in this rule. FRA has concluded that such notice and comment are impracticable, unnecessary and contrary to the public interest under 5 U.S.C. 553 since FRA is either making minor technical changes in response to the past year's operational experience of railroads and employees working under the provisions of the final rule or the amendments are purely "housekeeping". Additionally, all issues addressed by these amendments were previously the subject of detailed notice and extensive comment in the development of the initial final rule in this proceeding. However, interested parties may comment on this rule and FRA will consider those comments. For this reason, FRA has issued this as an interim final rule so that it can take

effect while any comments are being considered. If comments persuade FRA that further amendments are necessary, it will address them in a subsequent notice. As noted above, comments must be submitted no later than July 22, 1996.

Section-by-Section Amendments**§ 234.1 ("Scope")**

In order to correct a typographical error, the first sentence of this section is being amended by adding "for" between "testing standards" and "highway-rail grade crossing."

§ 234.3 ("Application")

This section is not being changed, however, despite the attempt in the preamble to the final rule to fully explain the type of rail operations which are covered by these regulations, based on the number of questions that have been posed, it has become clear that we were not entirely successful. As stated in the rule, this part applies to all railroads except (1) a railroad that exclusively operates freight trains only on track which is not part of the general railroad system of transportation, (2) rail rapid transit operations conducted over track that is used exclusively for that purpose and that is not part of the general railroad system of transportation, or (3) a passenger railroad that operates trains only on track inside an installation that is insular. Part 209 of title 49 of the Code of Federal Regulations defines a railroad as any form of non-highway ground transportation that runs on rails or electromagnetic guideways, excluding rapid transit operations not connected to the general railroad system of transportation. The following discussion addresses specific types of rail operations and whether this rule applies to that operation.

Rail rapid transit—this part does not apply to rail rapid transit operations conducted over track that is used exclusively for that purpose and that is not part of the general railroad system of transportation.

Rail passenger operations—this part does apply to passenger railroad operations if any of the following exists on the line of railroad: (a) a public highway-rail crossing that is in use; (b) an at grade rail crossing that is in use; (c) a bridge over a public road or waters used for commercial navigation; (d) or its operations are within 30 feet of those of any other railroad. If any of these conditions exist, all grade crossings over which the railroad operates, both public and private crossings, are subject to this rule. It is important to note that the fact that a passenger railroad is not

connected to the general railroad system does not in itself affect a railroad's duty to comply with this part. An analysis must be made as to the presence of the above mentioned factors.

Rail freight operations—this part applies to all freight railroads which are part of the general railroad system of transportation. FRA's regulations generally exclude railroads whose entire operations are confined to an industrial installation, i.e., "plant railroads" such as those in steel mills that do not go beyond the plant's boundaries. However, even where a railroad operates outside of the general system, other railroads that are part of that system may have occasion to enter the first railroad's property. In that case the plant railroad would have to meet FRA's highway-rail grade crossing warning system standards if a general system railroad operated over the grade crossing. These regulations do not apply to a freight carrying railroad (and the grade crossings over which it operates) which is not part of the general railroad system of transportation. Both public and private crossings that general system railroads operate over are covered by this part.

§ 234.5 ("Definitions")

A benefit of reviewing FRA's and railroads' experience with this new rule is that "fine tuning" can be accomplished based on real world experience. Shortly after the rule was implemented, it became clear that the rule did not adequately address those cases in which a portion of a warning system operated correctly while other portions or components did not perform as intended. FRA is revising the definition of "activation failure" and is newly defining "partial activation" to address those situations.

The definition of "activation failure" is being revised to provide that activation failure includes the situation in which a grade crossing signal system does not indicate the approach of a train within the meaning of this paragraph if—(1) more than 50% of the flashing lights (not gate arm lights) on any approach lane to the crossing are not functioning as intended, or (2) in the case of an approach lane for which two or more pairs of flashing lights are provided, there is not at least one flashing light pair operating as intended. Back lights on the far side of the crossing are not considered in making these determinations. FRA believes that if more than half of the flashing lights directed to a motorist's approach are not operating properly, a motorist does not receive sufficient warning that a train is approaching. Similarly, if a motorist's

approach is normally provided with one or more pairs of alternately flashing lights, if at least one pair is not operating properly, sufficient warning is not being provided.

The definition of "appropriately equipped flagger" is being revised to leave greater discretion with railroads in determining the type of clothing to be worn by flaggers. The definition contained in the final rule was based on the Federal Highway Administration's standards pertaining to flaggers and flagging equipment for highway traffic control contained in the Manual on Uniform Traffic Control Devices (MUTCD). FRA has received information from manufacturers that the requirement for nighttime visibility of 1000 feet is not possible to meet under all conditions and therefore manufacturers can not certify to a purchaser that the clothing would comply with the regulatory requirement. FRA is thus deleting the 1000 feet requirement. While it is revising its requirements from those standards for highway construction flagging contained in the MUTCD, FRA recommends that railroads be aware of the standards and follow them to the greatest extent possible. Copies of the latest MUTCD provisions regarding flagging will be available from FRA, as well as FHWA, as changes are made in this area.

FRA is clarifying this provision by redefining "appropriately equipped flagger" as "a person other than a train crewmember who is equipped with a vest, shirt, or jacket of a color appropriate for daytime flagging such as orange, yellow, strong yellow green or fluorescent versions of these colors or other generally accepted high visibility colors. For nighttime flagging, similar outside garments shall be retro reflective. Acceptable hand signal devices for daytime flagging include "STOP/SLOW" paddles or red flags. For nighttime flagging, a flashlight, lantern, or other lighted signal shall be used."

Please note that this definition is also being clarified by replacing the "and" in "STOP/SLOW paddles and red paddles" with "or". Additionally, this provision will now permit yellow-green clothing and other generally acceptable colors.

As noted above, FRA is adding a definition of "partial activation" to address those situations in which the warning provided a motorist by a malfunctioning system is of a level that supplemental actions are necessary to provide an adequate level of safety. "Partial activation" means activation of a highway-rail grade crossing warning system indicating the approach of a

train, however, the full intended warning is not provided due to one of the following conditions:

- (1) At non-gated crossings equipped with one pair of lights designed to flash alternately, one of the two lights does not operate properly (and approaching motorists can not clearly see flashing back lights from the warning lights on the other side of the crossing);
- (2) At gated crossings, the gate arm is not in a horizontal position; or
- (3) At gated crossings, any portion of a gate arm is missing if that portion had held a gate arm flashing light.

§ 234.6 ("Penalties")

This section is being clarified in two ways. First, a typographical error is corrected in the phrase "imminent hazard of death of injury." That phrase should read "imminent hazard of death or injury." Additionally, this section is being amended to ensure that the original intent of FRA is understood by the regulated community as well as by FRA and State inspectors enforcing this rule. Railroads can not be held responsible for conditions of non-compliance with the rule which are beyond their control. Actions of third parties can cause grade crossing warning systems to be in noncompliance. For instance, large motor vehicles may brush flashing lights, resulting in misalignment. Motorists often break off gates. Vandals sometimes break flashing light units. Railroads should not be liable under this rule for those conditions over which they have no control and which the railroad could not have prevented through the exercise of due diligence. The concept of due diligence includes the obligation to take appropriate action when a railroad discovers an instance of non-compliance or when it receives sufficiently reliable information suggesting non-compliance that warrants investigation. Accordingly, this section is being clarified to include the following: "The railroad is not responsible for compliance with respect to any condition inconsistent with the technical standards set forth in this part where such variance arises as a result of actions beyond the control of the railroad and the railroad could not have prevented the variance through the exercise of due diligence. The foregoing sentence does not excuse any instance of noncompliance resulting from the actions of the railroad's employees, agents, or contractors." This clarification as to the compliance obligations of railroads under Part 234 is in no way intended to affect whatever common law liability the railroad may otherwise be subject to.

§ 234.9 ("Grade crossing system failure reports")

Paragraph "a". There appears to be some confusion as to where activation reports required by this paragraph are to be sent. This paragraph states that reports should be completed in accordance with instructions printed on the form. At the present time, the form requires that the report should be sent to the FRA's headquarters. FRA is in the process of amending the instructions to instruct railroads to send the forms to the FRA regional office in which the railroad headquarters is located. While we prefer that reports be sent to the regional offices, until the form is changed, a railroad may continue to send reports to Washington.

Paragraph "b". This section relating to false activation reports, expired on April 1, 1994. This paragraph is therefore being deleted.

§ 234.11 ("Railroad rules")

This section, originally part of the 1991 reporting rule, was necessary to provide FRA with background information to assist FRA in formulating maintenance, inspection, and testing requirements. Inasmuch as the rules have been instituted, there is no further need for the information required by this section. This section was inadvertently retained in the final rule and is therefore now being deleted.

§ 234.13 ("Grade crossing signal systems information")

This section required that certain grade crossing information be filed with FRA by April 1, 1992. This section was inadvertently retained in the final rule and is therefore now being deleted.

§ 234.103 ("Timely response to reported malfunctions")

Paragraph "b" of this section requires that until repair or correction of the warning system is completed, the railroad shall provide alternative means of warning highway traffic and railroad employees in accordance with §§ 234.105 ("activation failure") and 234.107 ("false activation"). This paragraph is being revised to include reference to new § 234.106 ("partial activation").

§ 234.106 ("Partial activation")

This new section clarifies the responsibilities of a railroad in the situation in which a grade crossing warning device provides some warning of an approaching train, but at a level less than that designed for the system. This section requires that upon receipt of a credible report of a partial activation, a railroad having

maintenance responsibility for the warning system shall promptly initiate efforts to warn highway users and railroad employees at the subject crossing in the same manner as required for false activation in § 234.107.

§ 234.207 ("Adjustment, repair, or replacement of component")

Paragraph "b" of this section is being amended to include § 234.106 (partial activation) among those sections based upon which a railroad must take certain action until repair of an essential component is completed. Thus, until repair of an essential component is completed, a railroad shall take appropriate action under § 234.105 ("activation failure"), § 234.106 ("partial activation"), or § 234.107 ("false activation").

§ 234.215 ("Standby power")

Under the provisions of the final rule, this section requires the railroad to provide a backup power source so that the warning system will continue to function normally until the primary source of power is restored. This section was the subject of the Petition for Reconsideration submitted by the Brotherhood of Railroad Signalmen, the American Short Line Railroad Association, and the Association of American Railroads in which they jointly requested reconsideration of certain aspects of the final rule. The petition for reconsideration requested that FRA stay enforcement of this section's requirement that a standby source of power "be provided with sufficient capacity to operate the warning system during any period of primary power interruption." As noted above, FRA granted the petition for reconsideration.

In its Interim Policy Manual issued on April 14, 1995, FRA indicated that "this section requires the railroad to provide a backup power source so that the warning system will continue to function normally until the primary source of power is restored." This section is being revised to more clearly reflect the proper interpretation of the rule language. FRA is therefore amending this provision to provide that a railroad is required to install and properly maintain a standby power source in order to operate the system for a reasonable length of time during a primary power interruption. Determining the capacity of the standby power source will be at the discretion of each individual railroad. The designated capacity must be specified on the system plans required to be kept at each grade crossing warning system location. Factors which should be considered by

the railroad are the power demands of particular location, the likelihood of discovery of the primary power outage (i.e., the presence of electronic notification devices, power off indicators, likelihood of employee discovery), the availability and proximity of maintenance employees, and the number of trains that are operated over the crossing.

§ 234.223 ("Gate arm")

This section is amended to clarify that the provision requiring that each gate arm shall assume the horizontal position at least five seconds before the arrival of any train at the crossing applies to normal train movements through the crossing. By adding "normal train movement through the crossing" we are making clear that the five second requirement does not apply when trains are performing switching operations or making station stops within the grade crossing approach circuit. This section was intended to ensure that when a train enters the approach circuit to the grade crossing without stopping, the gates will be down at least five seconds prior to the arrival of such train. While it is possible to design and install the approach circuits to activate the system in a predetermined amount of time for a train's entrance onto such approach circuit, it is not possible to ensure the timing of the warning system gates for train movements such as switching movements and passenger train stops made within the approach circuit. Train crews must adhere to railroad operating rules before entering a grade crossing while performing switching movements or departing from stations.

§ 234.225 ("Activation of warning system.")

This section requires that each highway-rail grade crossing warning system be maintained to activate in accordance with the design of the warning system, but in no event shall it provide less than 20 seconds warning time before the crossing is occupied by rail traffic. This section is being amended to clarify that the 20 second warning time requirement applies to normal through train operations rather than switching movements or train operations that require stopping short of the grade crossing. A crossing warning system is not designed for those situations in which a switching movement occupies a grade crossing approach circuit or trains stop short of a grade crossing. In those situations the warning system activates but if a train does not cross the grade crossing itself within a set period of time (or in newer

designs if the motion detector does not detect motion) the system will cease providing a warning ("time out"). When the train then occupies the crossing after the system has timed out, a full 20 seconds warning time may not be provided. In those cases, railroad operating rules require that alternative warning be provided the motorist.

§ 234.231 ("Fouling wires")

This section addressed the situation in which a turnout located within a grade crossing train detection circuit is equipped with fouling wires. This section is being revised to clarify that installation of a single duplex wire with a single plug acting as fouling wires is prohibited. The revised section provides that existing installations having single duplex wires with a single plug acting as fouling wires may be continued in use until they require repair or replacement.

§ 234.237 ("Switch equipped with circuit controller")

The heading for this section was "Switch equipped with circuit controller." This heading is being changed to the more accurate and descriptive "Reverse switch cut-out circuit."

§ 234.239 ("Tagging of wires and interference of wires or tags with signal apparatus")

This section is being revised to clarify that its requirements apply to each wire at each terminal in all housings, including switch circuit controllers and terminal or junction boxes. This section does not apply to flashing light units, gate arm light units and other auxiliary light units. Further clarification is provided by stating that the local wiring on a solid state crossing controller rack will not require tags if the wiring is an integral part of the solid state equipment.

§ 234.247 ("Purposes of inspections and tests; removal from service of relay or device failing to meet test requirements")

This section addresses the purposes of inspections and tests and the removal from service of devices failing to meet test requirements. Subpart D of Part 234 (Maintenance, Inspection, and Testing) is not intended to apply to grade crossing warning systems on out of service track. To do otherwise would create a pointless regulatory requirement in which tests and inspections are performed to ensure the operability of a device that will not be operating. Accordingly, this section is being clarified to provide that the

provisions of Subpart D apply only to active railroad tracks. If a railroad elects not to comply with the requirements of this subpart because a track is out of service, or the railroad suspends operations during a portion of the year, a full inspection and tests of all required components must be successfully completed before operations resume. FRA is therefore revising the first sentence and adding an additional sentence of this section to read: "The inspections and tests set forth in §§ 234.249 through 234.271 are required at highway-rail grade crossings located on in-service railroad tracks and shall be made to determine if the warning system and its component parts are maintained in a condition to perform their intended function. A railroad may elect not to comply with the requirements of these sections if tracks over the grade crossing are out of service or the railroad suspends operations during a portion of the year, and the grade crossing warning system is also temporarily taken out of service. A full inspection and all required tests must be successfully completed before railroad operations over the grade crossing resume."

§ 234.259 ("Warning time")

This section is being amended to provide that, in addition to testing the warning system for the prescribed warning time every 12 months, the system be tested whenever it is modified because of a change in train speeds. The preamble to the final rule noted that the labor/management group "state that it would be more appropriate to test warning time once each year, or when the warning system is modified in connection with changes in authorized train speeds." FRA accepted this suggestion and extended the period between tests from three months to one year but inadvertently omitted the requirement that the system be tested whenever modified due to changes in authorized train speeds. Although the preamble to the final rule indicated FRA's intention to include this in the final rule, such language was not in fact included. This section is being revised to correct that oversight.

§ 234.263 ("Relays")

This section is being revised to add a new subsection "c" to provide a phase-in period for the industry to test relays, which, as of the effective date of the rule, had not been tested within the period required by this section. As it has in done in appropriate circumstances in the past, FRA is providing a "phase-in" period to allow railroads to come into compliance with certain provisions of

the new rule. In situations such as this, when tests are required every one, two, or four years, or in the case of insulation resistance tests (§ 234.267), every ten years, FRA establishes a schedule by which a railroad must be in full compliance with a new testing requirement. To do otherwise would result in numerous violations immediately upon the effective date of a new rule. Such a result would be unfair and would not necessarily lead to improved safety. FRA is thus adding new subsection "c" to provide that not less than 50% of relays requiring testing on four year intervals shall be completed by the end of calendar year 1996, not less than a total of 75% by the end of calendar year 1997; and 100% by the end of calendar year 1998. New subsection "d" provides that testing of relays requiring testing on two year intervals shall be completed by the end of calendar year 1996.

§ 234.265 ("Timing relays and timing devices")

This section requires that each timing relay and timing device be tested at least once every twelve months. It also requires that the timing be maintained at not less than 90% nor more than 110% of the predetermined time interval. The predetermined time interval must be shown on the plans or marked on the timing relay or timing device.

This section is being revised to clarify that internal timing devices associated with motion detectors, motion sensors, and grade crossing predictors are not subject to the requirements of this section.

§ 234.267 ("Insulation resistance tests, wires in trunking and cables")

The heading for this section was accurate in the preamble of the final rule, but was incomplete in the actual body of the rule. Accordingly, the heading is being amended to add "wires in trunking and cables" to "Insulation resistance tests."

As it has done with relay testing (§ 234.263), FRA is providing a "phase-in" period to allow railroads to come into compliance with the testing provisions of this new requirement. FRA is thus adding new section "e" to provide that not less than 50% of the required insulation resistance testing shall be completed by the end of calendar year 1996, not less than a total of 75% by the end of calendar year 1997; and 100% by the end of calendar year 1998.

§ 234.273 ("Results of tests")

The language of this section is incomplete in that it excludes "inspections" from both the title and the body of the rule, despite the clear understanding that §§ 234.247 through 234.271 includes both inspections and tests. The TRC recommended that the language in this section be amended to more closely reflect the purpose of the rule. Therefore, this section is being amended to include "inspections" together with "tests."

E.O. 12866 and DOT Regulatory Policies and Procedures

These amendments have been evaluated in accordance with existing policies and procedures. Because these amendments are primarily technically oriented and generally reduce the regulatory burden on railroads, FRA has concluded that this revisions do not constitute a significant rule under either Executive Order 12866 or DOT's regulatory policies and procedures.

Regulatory Flexibility Act

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601 et seq.) requires a review of rules to assess their impact on small entities. FRA certifies that this rule will not have a significant impact on a substantial number of small entities. There are no substantial economic impacts for small units of government, businesses, or other organizations.

Paperwork Reduction Act

These amendments to Part 234 do not change any information collection requirements.

Environmental Impact

FRA has evaluated these regulations in accordance with its procedure for ensuring full consideration of the potential environmental impacts of FRA actions, as required by the National Environmental Policy Act and related directives.

Federalism Implications

This action has been analyzed in accordance with the principles and criteria contained in Executive Order 12612, "Federalism," and it has been determined that these amendments to Part 234 do not have federalism implications to warrant the preparation of a Federalism Assessment.

Since a number of technical and clarifying changes are being made to this part, the entire part is being republished as amended. In that way interested parties do not need to wait for the next publication of the yearly codification of the Code of Federal

Regulations for a complete current version of the rule.

List of Subjects in 49 CFR Part 234

Railroad safety, Highway-rail grade crossings.

The Rule

In consideration of the foregoing, 49 CFR part 234 is revised as follows:

PART 234—GRADE CROSSING SIGNAL SYSTEM SAFETY [AMENDED]**Subpart A—General****Sec.**

- 234.1 Scope.
- 234.3 Application.
- 234.4 Preemptive effect.
- 234.5 Definitions.
- 234.6 Penalties.

Subpart B—Reports

- 234.7 Accidents involving grade crossing signal failure.
- 234.9 Grade crossing signal failure reports.

Subpart C—Response to Reports of Warning System Malfunction

- 234.101 Employee notification rules.
- 234.103 Timely response to report of malfunction.
- 234.105 Activation failure.
- 234.107 False activation.
- 234.109 Recordkeeping

Subpart D—Maintenance, Inspection, and Testing**Maintenance Standards**

- 234.201 Location of plans.
- 234.203 Control circuits.
- 234.205 Operating characteristics of warning system apparatus.
- 234.207 Adjustment, repair, or replacement of component.
- 234.209 Interference with normal functioning of system.
- 234.211 Locking of warning system apparatus.
- 234.213 Grounds.
- 234.215 Standby power system.
- 234.217 Flashing light units.
- 234.219 Gate arm lights and light cable.
- 234.221 Lamp voltage.
- 234.223 Gate arm.
- 234.225 Activation of warning system.
- 234.227 Train detection apparatus.
- 234.229 Shunting sensitivity.
- 234.231 Fouling wires.
- 234.233 Rail joints.
- 234.235 Insulated rail joints.
- 234.237 Reverse switch cut-out circuit.
- 234.239 Tagging of wires and interference of wires or tags with signal apparatus.
- 234.241 Protection of insulated wire; splice in underground wire.
- 234.243 Wire on pole line and aerial cable.
- 234.245 Signs.

Inspections and Tests

- 234.247 Purpose of inspections and tests; removal from service of relay or device failing to meet test requirements.
- 234.249 Ground tests.
- 234.251 Standby power.

- 234.253 Flashing light units and lamp voltage.
 - 234.255 Gate arm and gate mechanism.
 - 234.257 Warning system operation.
 - 234.259 Warning time.
 - 234.261 Highway traffic signal pre-emption.
 - 234.263 Relays.
 - 234.265 Timing relays and timing devices.
 - 234.267 Insulation resistance tests, wires in trunking and cables.
 - 234.269 Cut-out circuits.
 - 234.271 Insulated rail joints, bond wires, and track connections.
 - 234.273 Results of tests.
- Appendix A—Schedule of Civil Penalties.
Appendix B—Alternate Methods of Protection under 49 CFR 234.105(c), 234.106, and 234.107(c).
- Authority: 49 U.S.C.20103, 20107, 20108, 20111, 20112, 20114, 21301, 21302, 21304, and 21311 (formerly Secs. 202, 208, and 209 of the Federal Railroad Safety Act of 1970, as amended (45 U.S.C. 431, 437, and 438, as amended)); 49 U.S.C.20901 and 20102 (formerly the Accident Reports Act); 45 U.S.C. 38 and 42; and 49 CFR 1.49(f), (g), and (m).

Subpart A—General**§ 234.1 Scope.**

This part imposes minimum maintenance, inspection, and testing standards for highway-rail grade crossing warning systems. This part also prescribes standards for the reporting of failures of such systems and prescribes minimum actions railroads must take when such warning systems malfunction. This part does not restrict a railroad from adopting and enforcing additional or more stringent requirements not inconsistent with this part.

§ 234.3 Application.

This part applies to all railroads except:

- (a) A railroad that exclusively operates freight trains only on track which is not part of the general railroad system of transportation;
- (b) Rapid transit operations within an urban area that are not connected to the general railroad system of transportation; and
- (c) A railroad that operates passenger trains only on track inside an installation that is insular; i.e., its operations are limited to a separate enclave in such a way that there is no reasonable expectation that the safety of the public—except a business guest, a licensee of the railroad or an affiliated entity, or a trespasser—would be affected by the operation. An operation will not be considered insular if one or more of the following exists on its line:
 - (1) A public highway-rail crossing that is in use;
 - (2) An at-grade rail crossing that is in use;

(3) A bridge over a public road or waters used for commercial navigation; or

(4) A common corridor with a railroad, i.e., its operations are within 30 feet of those of any railroad.

§ 234.4 Preemptive effect.

Under 49 U.S.C. 20106 (formerly § 205 of the Federal Railroad Safety Act of 1970 (45 U.S.C. 434)), issuance of these regulations preempts any State law, rule, regulation, order, or standard covering the same subject matter, except a provision directed at an essentially local safety hazard that is consistent with this part and that does not impose an undue burden on interstate commerce.

§ 234.5 Definitions.

As used in this part:

“Activation failure” means the failure of an active highway-rail grade crossing warning system to indicate the approach of a train at least 20 seconds prior to the train’s arrival at the crossing, or to indicate the presence of a train occupying the crossing, unless the crossing is provided with an alternative means of active warning to highway users of approaching trains. (This failure indicates to the motorist that it is safe to proceed across the railroad tracks when, in fact, it is not safe to do so.) A grade crossing signal system does not indicate the approach of a train within the meaning of this paragraph if—more than 50% of the flashing lights (not gate arm lights) on any approach lane to the crossing are not functioning as intended, or in the case of an approach lane for which two or more pairs of flashing lights are provided, there is not at least one flashing light pair operating as intended. Back lights on the far side of the crossing are not considered in making these determinations.

“Appropriately equipped flagger” means a person other than a train crewmember who is equipped with a vest, shirt, or jacket of a color appropriate for daytime flagging such as orange, yellow, strong yellow green or fluorescent versions of these colors or other generally accepted high visibility colors. For nighttime flagging, similar outside garments shall be retro reflective. Acceptable hand signal devices for daytime flagging include “STOP/SLOW” paddles or red flags. For nighttime flagging, a flashlight, lantern, or other lighted signal shall be used. Inasmuch as Part VI of the Federal Highway Administration’s Manual on Uniform Traffic Control Devices addresses standards and guides for flaggers and flagging equipment for highway traffic control, FRA

recommends that railroads be aware of the standards and follow them to the greatest extent possible. Copies of the latest MUTCD provisions regarding flagging will be available from FRA, as well as FHWA, as changes are made in this area.

“Credible report of system malfunction” means specific information regarding a malfunction at an identified highway-rail crossing, supplied by a railroad employee, law enforcement officer, highway traffic official, or other employee of a public agency acting in an official capacity.

“False activation” means the activation of a highway-rail grade crossing warning system caused by a condition that requires correction or repair of the grade crossing warning system. (This failure indicates to the motorist that it is not safe to cross the railroad tracks when, in fact, it is safe to do so.)

“Highway-rail grade crossing” means a location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at grade.

“Partial activation” means activation of a highway-rail grade crossing warning system indicating the approach of a train, however, the full intended warning is not provided due to one of the following conditions:

(1) at non-gated crossings equipped with one pair of lights designed to flash alternately, one of the two lights does not operate properly (and approaching motorists can not clearly see flashing back lights from the warning lights on the other side of the crossing);

(2) at gated crossings, the gate arm is not in a horizontal position; or

(3) at gated crossings, any portion of a gate arm is missing if that portion normally had a gate arm flashing light attached.

“Train” means one or more locomotives, with or without cars.

“Warning system malfunction” means an activation failure, a partial activation, or a false activation of a highway-rail grade crossing warning system.

§ 234.6 Penalties.

(a) *Civil penalty.* 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 \$500,

but not more than \$10,000 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 persons, or has caused death or injury, a penalty may be assessed. Each day a violation continues shall constitute a separate offense. Appendix A to this part contains a schedule of civil penalty amounts used in connection with this rule. The railroad is not responsible for compliance with respect to any condition inconsistent with the technical standards set forth in this part where such variance arises as a result of actions beyond the control of the railroad and the railroad could not have prevented the variance through the exercise of due diligence. The foregoing sentence does not excuse any instance of noncompliance resulting from the actions of the railroad’s employees, agents, or contractors.

(b) *Criminal penalty.* Whoever knowingly and willfully makes, causes to be made, or participates in the making of a false entry in reports required to be filed by this part, or files a false report or other document required to be filed by this part is subject to a \$5,000 fine and 2 years imprisonment as prescribed by 49 U.S.C. 522(a) and section 209(e) of the Federal Railroad Safety Act of 1970, as amended (45 U.S.C. 438(e)).

Subpart B—Reports

§ 234.7 Accidents involving grade crossing signal failure.

(a) Each railroad shall report to FRA every impact between on-track railroad equipment and an automobile, bus, truck, motorcycle, bicycle, farm vehicle, or pedestrian at a highway-rail grade crossing involving an activation failure. Notification shall be provided to the National Response Center within 24 hours of occurrence at (800) 424-0201. Complete reports shall thereafter be filed with FRA pursuant to § 234.9 of this part (activation failure report) and 49 CFR 225.11 (accident/ incident report).

(b) Each telephone report must state the:

- (1) Name of the railroad;
- (2) Name, title, and telephone number of the individual making the report;
- (3) Time, date, and location of accident;
- (4) U. S. DOT-AAR Grade Crossing Identification Number;

(5) Circumstances of the accident, including operating details of the grade crossing warning device;

(6) Number of persons killed or injured, if any;

(7) Maximum authorized train speed; and

(8) Posted highway speed limit, if known.

§ 234.9 Grade crossing signal system failure reports.

Each railroad shall report to FRA within 15 days each activation failure of a highway-rail grade crossing warning system. FRA Form No. 6180-83, "Highway-Rail Grade Crossing Warning System Failure Report," shall be used for this purpose and completed in accordance with instructions printed on the form.

Subpart C—Response to Reports of Warning System Malfunction

§ 234.101 Employee notification rules.

Each railroad shall issue rules requiring its employees to report to persons designated by that railroad, by the quickest means available, any warning system malfunction.

§ 234.103 Timely response to report of malfunction.

(a) Upon receipt of a credible report of a warning system malfunction, a railroad having maintenance responsibility for the warning system shall promptly investigate the report and determine the nature of the malfunction. The railroad shall take appropriate action as required by § 234.207.

(b) Until repair or correction of the warning system is completed, the railroad shall provide alternative means of warning highway traffic and railroad employees in accordance with §§ 234.105, 234.106 or 234.107 of this part.

(c) Nothing in this subpart requires repair of a warning system, if, acting in accordance with applicable State law, the railroad proceeds to discontinue or dismantle the warning system. However, until repair, correction, discontinuance, or dismantling of the warning system is completed, the railroad shall comply with this subpart to ensure the safety of the traveling public and railroad employees.

§ 234.105 Activation failure.

Upon receipt of a credible report of warning system malfunction involving an activation failure, a railroad having maintenance responsibility for the warning system shall promptly initiate efforts to warn highway users and

railroad employees at the subject crossing by taking the following actions:

(a) Prior to any train's arrival at the crossing, notify the train crew of the report of activation failure and notify any other railroads operating over the crossing;

(b) Notify the law enforcement agency having jurisdiction over the crossing, or railroad police capable of responding and controlling vehicular traffic; and

(c) Provide for alternative means of actively warning highway users of approaching trains, consistent with the following requirements (see Appendix B for a summary chart of alternative means of warning):

(1)(i) If an appropriately equipped flagger provides warning for each direction of highway traffic, trains may proceed through the crossing at normal speed.

(ii) If at least one uniformed law enforcement officer (including a railroad police officer) provides warning to highway traffic at the crossing, trains may proceed through the crossing at normal speed.

(2) If an appropriately equipped flagger provides warning for highway traffic, but there is not at least one flagger providing warning for each direction of highway traffic, trains may proceed with caution through the crossing at a speed not exceeding 15 miles per hour. Normal speed may be resumed after the locomotive has passed through the crossing.

(3) If there is not an appropriately equipped flagger or uniformed law enforcement officer providing warning to highway traffic at the crossing, each train must stop before entering the crossing and permit a crewmember to dismount to flag highway traffic to a stop. The locomotive may then proceed through the crossing, and the flagging crewmember may reboard the locomotive before the remainder of the train proceeds through the crossing.

(d) A locomotive's audible warning device shall be activated in accordance with railroad rules regarding the approach to a grade crossing.

§ 234.106 Partial activation.

Upon receipt of a credible report of a partial activation, a railroad having maintenance responsibility for the warning system shall promptly initiate efforts to warn highway users and railroad employees at the subject crossing in the same manner as required for false activations (§ 234.107).

§ 234.107 False activation.

Upon receipt of a credible report of a false activation, a railroad having maintenance responsibility for the

highway-rail grade crossing warning system shall promptly initiate efforts to warn highway users and railroad employees at the crossing by taking the following actions:

(a) Prior to a train's arrival at the crossing, notify the train crew of the report of false activation and notify any other railroads operating over the crossing;

(b) Notify the law enforcement agency having jurisdiction over the crossing, or railroad police capable of responding and controlling vehicular traffic; and

(c) Provide for alternative means of actively warning highway users of approaching trains, consistent with the following requirements (see Appendix B for a summary chart of alternative means of warning).

(1)(i) If an appropriately equipped flagger is providing warning for each direction of highway traffic, trains may proceed through the crossing at normal speed.

(ii) If at least one uniformed law enforcement officer (including a railroad police officer) provides warning to highway traffic at the crossing, trains may proceed through the crossing at normal speed.

(2) If there is not an appropriately equipped flagger providing warning for each direction of highway traffic, or if there is not at least one uniformed law enforcement officer providing warning, trains with the locomotive or cab car leading, may proceed with caution through the crossing at a speed not exceeding 15 miles per hour. Normal speed may be resumed after the locomotive has passed through the crossing. In the case of a shoving move, a crewmember shall be on the ground to flag the train through the crossing.

(3) In lieu of complying with paragraphs (c) (1) or (2) of this section, a railroad may temporarily take the warning system out of service if the railroad complies with all requirements of § 234.105, "Activation failure."

(d) A locomotive's audible warning device shall be activated in accordance with railroad rules regarding the approach to a grade crossing.

§ 234.109 Recordkeeping.

(a) Each railroad shall keep records pertaining to compliance with this subpart. Records may be kept on forms provided by the railroad or by electronic means. Each railroad shall keep the following information for each credible report of warning system malfunction:

(1) Location of crossing (by highway name and DOT/AAR Crossing Inventory Number);

(2) Time and date of receipt by railroad of report of malfunction;

(3) Actions taken by railroad prior to repair and reactivation of repaired system; and

(4) Time and date of repair.

(b) Each railroad shall retain for at least one year (from the latest date of railroad activity in response to a credible report of malfunction) all records referred to in paragraph (a) of this section. Records required to be kept shall be made available to FRA as provided by 49 U.S.C. 20107 (formerly 208 of the Federal Railroad Safety Act of 1970 (45 U.S.C. 437)).

Subpart D—Maintenance, Inspection, and Testing

Maintenance Standards

§ 234.201 Location of plans.

Plans required for proper maintenance and testing shall be kept at each highway-rail grade crossing warning system location. Plans shall be legible and correct.

§ 234.203 Control circuits.

All control circuits that affect the safe operation of a highway-rail grade crossing warning system shall operate on the fail-safe principle.

§ 234.205 Operating characteristics of warning system apparatus.

Operating characteristics of electromagnetic, electronic, or electrical apparatus of each highway-rail crossing warning system shall be maintained in accordance with the limits within which the system is designed to operate.

§ 234.207 Adjustment, repair, or replacement of component.

(a) When any essential component of a highway-rail grade crossing warning system fails to perform its intended function, the cause shall be determined and the faulty component adjusted, repaired, or replaced without undue delay.

(b) Until repair of an essential component is completed, a railroad shall take appropriate action under § 234.105, Activation failure, § 234.106, Partial activation, or § 234.107, False activation, of this part.

§ 234.209 Interference with normal functioning of system.

(a) The normal functioning of any system shall not be interfered with in testing or otherwise without first taking measures to provide for safety of highway traffic that depends on normal functioning of such system.

(b) Interference includes, but is not limited to:

(1) Trains, locomotives or other railroad equipment standing within the system's approach circuit, other than

normal train movements or switching operations, where the warning system is not designed to accommodate those activities.

(2) Not providing alternative methods of maintaining safety for the highway user while testing or performing work on the warning systems or on track and other railroad systems or structures which may affect the integrity of the warning system.

§ 234.211 Security of warning system apparatus.

Highway-rail grade crossing warning system apparatus shall be secured against unauthorized entry.

§ 234.213 Grounds.

Each circuit that affects the proper functioning of a highway-rail grade crossing warning system shall be kept free of any ground or combination of grounds that will permit a current flow of 75 percent or more of the release value of any relay or electromagnetic device in the circuit. This requirement does not apply to: circuits that include track rail; alternating current power distribution circuits that are grounded in the interest of safety; and common return wires of grounded common return single break circuits.

§ 234.215 Standby power system.

A standby source of power shall be provided with sufficient capacity to operate the warning system for a reasonable length of time during a period of primary power interruption. The designated capacity shall be specified on the plans required by § 234.201 of this part.

§ 234.217 Flashing light units.

(a) Each flashing light unit shall be properly positioned and aligned and shall be visible to a highway user approaching the crossing.

(b) Each flashing light unit shall be maintained to prevent dust and moisture from entering the interior of the unit. Roundels and reflectors shall be clean and in good condition.

(c) All light units shall flash alternately. The number of flashes per minute for each light unit shall be 35 minimum and 65 maximum.

§ 234.219 Gate arm lights and light cable.

Each gate arm light shall be maintained in such condition to be properly visible to approaching highway users. Lights and light wire shall be secured to the gate arm.

§ 234.221 Lamp voltage.

The voltage at each lamp shall be maintained at not less than 85 percent of the prescribed rating for the lamp.

§ 234.223 Gate arm.

Each gate arm, when in the downward position, shall extend across each lane of approaching highway traffic and shall be maintained in a condition sufficient to be clearly viewed by approaching highway users. Each gate arm shall start its downward motion not less than three seconds after flashing lights begin to operate and shall assume the horizontal position at least five seconds before the arrival of any normal train movement through the crossing. At those crossings equipped with four quadrant gates, the timing requirements of this section apply to entrance gates only.

§ 234.225 Activation of warning system.

A highway-rail grade crossing warning system shall be maintained to activate in accordance with the design of the warning system, but in no event shall it provide less than 20 seconds warning time for the normal operation of through trains before the grade crossing is occupied by rail traffic.

§ 234.227 Train detection apparatus.

(a) Train detection apparatus shall be maintained to detect a train or railcar in any part of a train detection circuit, in accordance with the design of the warning system.

(b) If the presence of sand, rust, dirt, grease, or other foreign matter is known to prevent effective shunting, a railroad shall take appropriate action under § 234.105, "Activation failure," to safeguard highway users.

§ 234.229 Shunting sensitivity.

Each highway-rail grade crossing train detection circuit shall detect the application of a shunt of 0.06 ohm resistance when the shunt is connected across the track rails of any part of the circuit.

§ 234.231 Fouling wires.

Each set of fouling wires in a highway-rail grade crossing train detection circuit shall consist of at least two discrete conductors. Each conductor shall be of sufficient conductivity and shall be maintained in such condition to ensure proper operation of the train detection apparatus when the train detection circuit is shunted. Installation of a single duplex wire with single plug acting as fouling wires is prohibited. Existing installations having single duplex wires with a single plug for fouling wires may be continued in use until they require repair or replacement.

§ 234.233 Rail joints.

Each non-insulated rail joint located within the limits of a highway-rail grade crossing train detection circuit shall be

bonded by means other than joint bars and the bonds shall be maintained in such condition to ensure electrical conductivity.

§ 234.235 Insulated rail joints.

Each insulated rail joint used to separate train detection circuits of a highway-rail grade crossing shall be maintained to prevent current from flowing between rails separated by the insulation in an amount sufficient to cause a failure of the train detection circuit.

§ 234.237 Reverse switch cut-out circuit.

A switch, when equipped with a switch circuit controller connected to the point and interconnected with warning system circuitry, shall be maintained so that the warning system can only be cut out when the switch point is within one-half inch of full reverse position.

§ 234.239 Tagging of wires and interference of wires or tags with signal apparatus.

Each wire shall be tagged or otherwise so marked that it can be identified at each terminal. Tags and other marks of identification shall be made of insulating material and so arranged that tags and wires do not interfere with moving parts of the apparatus. This requirement applies to each wire at each terminal in all housings including switch circuit controllers and terminal or junction boxes. This requirement does not apply to flashing light units, gate arm light units and other auxiliary light units. The local wiring on a solid state crossing controller rack does not require tags if the wiring is an integral part of the solid state equipment.

§ 234.241 Protection of insulated wire; splice in underground wire.

Insulated wire shall be protected from mechanical injury. The insulation shall not be punctured for test purposes. A splice in underground wire shall have insulation resistance at least equal to that of the wire spliced.

§ 234.243 Wire on pole line and aerial cable.

Wire on a pole line shall be securely attached to an insulator that is properly fastened to a cross arm or bracket supported by a pole or other support. Wire shall not interfere with, or be interfered with by, other wires on the pole line. Aerial cable shall be supported by messenger wire. An open-wire transmission line operating at voltage of 750 volts or more shall be placed not less than 4 feet above the nearest cross arm carrying active warning system circuits.

§ 234.245 Signs.

Each sign mounted on a highway-rail grade crossing signal post shall be maintained in good condition and be visible to the highway user.

Inspections and Tests

§ 234.247 Purpose of inspections and tests; removal from service of relay or device failing to meet test requirements.

(a) The inspections and tests set forth in §§ 234.249 through 234.271 are required at highway-rail grade crossings located on in service railroad tracks and shall be made to determine if the warning system and its component parts are maintained in a condition to perform their intended function.

(b) If a railroad elects not to comply with the requirements of these sections because all tracks over the grade crossing are out of service or the railroad suspends operations during a portion of the year, or the railroad suspends operations during a portion of the year, and the grade crossing warning system is also temporarily taken out of service a full inspection and all required tests must be successfully completed before railroad operations over the grade crossing resume.

(c) Any electronic device, relay, or other electromagnetic device that fails to meet the requirements of tests required by this part shall be removed from service and shall not be restored to service until its operating characteristics are in accordance with the limits within which such device or relay is designed to operate.

§ 234.249 Ground tests.

A test for grounds on each energy bus furnishing power to circuits that affect the safety of warning system operation shall be made when such energy bus is placed in service and at least once each month thereafter.

§ 234.251 Standby power.

Standby power shall be tested at least once each month.

§ 234.253 Flashing light units and lamp voltage.

(a) Each flashing light unit shall be inspected when installed and at least once every twelve months for proper alignment and frequency of flashes in accordance with installation specifications.

(b) Lamp voltage shall be tested when installed and at least once every 12 months thereafter.

(c) Each flashing light unit shall be inspected for proper visibility, dirt and damage to roundels and reflectors at least once each month.

§ 234.255 Gate arm and gate mechanism.

(a) Each gate arm and gate mechanism shall be inspected at least once each month.

(b) Gate arm movement shall be observed for proper operation at least once each month.

(c) Hold-clear devices shall be tested for proper operation at least once every 12 months.

§ 234.257 Warning system operation.

(a) Each highway-rail crossing warning system shall be tested to determine that it functions as intended when it is placed in service. Thereafter, it shall be tested at least once each month and whenever modified or disarranged.

(b) Warning bells or other stationary audible warning devices shall be tested when installed to determine that they function as intended. Thereafter, they shall be tested at least once each month and whenever modified or disarranged.

§ 234.259 Warning time.

Each crossing warning system shall be tested for the prescribed warning time at least once every 12 months and when the warning system is modified because of a change in train speeds. Electronic devices that accurately determine actual warning time may be used in performing such tests.

§ 234.261 Highway traffic signal pre-emption.

Highway traffic signal pre-emption interconnections, for which a railroad has maintenance responsibility, shall be tested at least once each month.

§ 234.263 Relays.

(a) Except as stated in paragraph (b) of this section, each relay that affects the proper functioning of a crossing warning system shall be tested at least once every four years.

(b)(1) Alternating current vane type relays, direct current polar type relays, and relays with soft iron magnetic structure shall be tested at least once every two years.

(2) Alternating current centrifugal type relays shall be tested at least once every 12 months.

(c) Testing of relays requiring testing on four year intervals shall be completed in accordance with the following schedule:

(1) Not less than 50% by the end of calendar year 1996;

(2) Not less than a total of 75% by the end of calendar year 1997; and

(3) One hundred percent by the end of calendar year 1998.

(d) Testing of relays requiring testing on two year intervals shall be completed by the end of calendar year 1996.

§ 234.265 Timing relays and timing devices.

Each timing relay and timing device shall be tested at least once every twelve months. The timing shall be maintained at not less than 90 percent nor more than 110 percent of the 41 predetermined time interval. The predetermined time interval shall be shown on the plans or marked on the timing relay or timing device. Timing devices which perform internal functions associated with motion detectors, motion sensors, and grade crossing predictors are not subject to the requirements of this section.

§ 234.267 Insulation resistance tests, wires in trunking and cables.

(a) Insulation resistance tests shall be made when wires or cables are installed and at least once every ten years thereafter.

(b) Insulation resistance tests shall be made between all conductors and ground, between conductors in each multiple conductor cable, and between conductors in trunking. Insulation resistance tests shall be performed when wires, cables, and insulation are dry.

(c) Subject to paragraph (d) of this section, when insulation resistance of wire or cable is found to be less than

500,000 ohms, prompt action shall be taken to repair or replace the defective wire or cable. Until such defective wire or cable is replaced, insulation resistance tests shall be made annually.

(d) A circuit with a conductor having an insulation resistance of less than 200,000 ohms shall not be used.

(e) Required insulation resistance testing that does not conform to the required testing schedule of this section shall be completed in accordance with the following schedule:

- (1) Not less than 50% by the end of calendar year 1996;
- (2) Not less than a total of 75% by the end of calendar year 1997; and
- (3) One hundred percent by the end of calendar year 1998.

§ 234.269 Cut-out circuits.

Each cut-out circuit shall be tested at least once every three months to determine that the circuit functions as intended. For purposes of this section, a cut-out circuit is any circuit which overrides the operation of automatic warning systems. This includes both switch cut-out circuits and devices which enable personnel to manually override the operation of automatic warning systems.

§ 234.271 Insulated rail joints, bond wires, and track connections.

Insulated rail joints, bond wires, and track connections shall be inspected at least once every three months.

§ 234.273 Results of inspections and tests.

(a) Results of inspections and tests made in compliance with this part shall be recorded on forms provided by the railroad, or by electronic means, subject to approval by the Associate Administrator for Safety. Each record shall show the name of the railroad, AAR/DOT inventory number, place and date, equipment tested, results of tests, repairs, replacements, adjustments made, and condition in which the apparatus was left.

(b) Each record shall be signed or electronically coded by the employee making the test and shall be filed in the office of a supervisory official having jurisdiction. Records required to be kept shall be made available to FRA as provided by 49 U.S.C. 20107 (formerly § 208 of the Federal Railroad Safety Act of 1970 (45 U.S.C. 437)).

(c) Each record shall be retained until the next record for that test is filed but in no case for less than one year from the date of the test.

APPENDIX A TO PART 234.—SCHEDULE OF CIVIL PENALTIES ¹

Section	Violation	Willful violation
Subpart B—Reports		
234.7 Accidents involving grade crossing signal failure	\$5,000	\$7,500
234.9 Grade crossing signal system failure reports	2,500	5,000
Subpart C—Response to Reports of Warning System Malfunction		
Sec.		
234.101 Employee notification rules	2,500	5,000
234.103 Timely response to report of malfunction	2,500	5,000
234.105 Activation failure		
(a) Failure to notify—train crews	5,000	7,500
Other railroads	5,000	7,500
(b) Failure to notify law enforcement agency	2,500	5,000
(c) Failure to comply with—flagging requirements	5,000	5,000
Speed restrictions	5,000	7,500
(d) Failure to activate horn or whistle	5,000	7,500
234.106 Partial activation		
(a) Failure to notify—train crews	5,000	7,500
Other railroads	5,000	7,500
(b) Failure to notify law enforcement agency	2,500	5,000
(c) Failure to comply with—flagging requirements speed restrictions	5,000	7,500
(d) Failure to activate horn or whistle	5,000	7,500
234.107 False activation		
(a) Failure to notify—train crews	5,000	7,500
Other railroads	5,000	7,500
(b) Failure to notify law enforcement agency	2,500	5,000
(c) Failure to comply with—flagging requirements	5,000	7,500
Speed restrictions	5,000	7,500
(d) Failure to activate horn or whistle	5,000	7,500
234.109 Recordkeeping	1,000	2,000
Subpart D—Maintenance, Inspection, and Testing		
Maintenance Standards:		
234.201 Location of plans	1,000	2,000
234.203 Control circuits	1,000	2,000
234.205 Operating characteristics of warning system apparatus	2,500	5,000

APPENDIX A TO PART 234.—SCHEDULE OF CIVIL PENALTIES ¹—Continued

Section	Violation	Willful violation
234.207 Adjustment, repair, or replacement of component	2,500	5,000
234.209 Interference with normal functioning of system	5,000	7,500
234.211 Locking of warning system apparatus	1,000	2,000
234.213 Grounds	1,000	2,000
234.215 Standby power system	5,000	7,500
234.217 Flashing light units	1,000	2,000
234.219 Gate arm lights and light cable	1,000	2,000
234.221 Lamp voltage	1,000	2,000
234.223 Gate arm	1,000	2,000
234.225 Activation of warning system	5,000	7,500
234.227 Train detection apparatus	2,500	5,000
234.229 Shunting sensitivity	2,500	5,000
234.231 Fouling wires	1,000	2,000
234.233 Rail joints	1,000	2,000
234.235 Insulated rail joints	1,000	2,000
234.237 Switch equipped with circuit controller	1,000	2,000
234.239 Tagging of wires and interference of wires or tags with signal apparatus	1,000	2,000
234.241 Protection of insulated wire; splice in underground wire	1,000	2,000
234.243 Wire on pole line and aerial cable	1,000	2,000
234.245 Signs	1,000	2,000
Inspections and Tests:		
234.247 Purpose of inspections and tests; removal from service of relay or device failing to meet test requirements	2,500	5,000
234.249 Ground tests	2,500	5,000
234.251 Standby power	5,000	7,500
234.253 Flashing light units and lamp voltage	1,000	2,000
234.255 Gate arm and gate mechanism	1,000	2,000
234.257 Warning system operation	2,500	5,000
234.259 Warning time	1,000	2,000
234.261 Highway traffic signal pre-emption	1,000	2,000
234.263 Relays	1,000	2,000
234.265 Timing relays and timing devices	1,000	2,000
234.267 Insulation resistance tests, wires in trunking and cables	2,500	5,000
234.269 Cut-out circuits	1,000	2,000
234.271 Insulated rail joints, bond wires, and track connections	2,500	5,000
234.273 Results of tests	1,000	2,000

¹ A penalty may be assessed against an individual only for a willful violation. The Administrator reserves the right to assess a penalty of up to \$20,000 for any violation where circumstances warrant. See 49 CFR Part 209, Appendix A.

APPENDIX B TO PART 234.—ALTERNATE METHODS OF PROTECTION UNDER 49 CFR 234.105(c), 234.106, AND 234.107(c)

[This is a summary—see body of text for complete requirements]

	Flagger for each direction of traffic	Police officer present	Flagger present, but not one for each direction of traffic	No flagger/no police
False Activation	Normal Speed	Normal Speed	Proceed with caution—maximum speed of 15 mph.	Proceed with caution—maximum speed of 15 mph.
Partial Activation*	Normal Speed	Normal Speed	Proceed with caution—maximum speed of 15 mph.	Proceed with caution—maximum speed of 15 mph.
Activation Failure**	Normal Speed	Normal Speed	Proceed with caution—maximum speed of 15 mph.	Stop: Crewmember flag traffic and reboard.

*Partial activation—full warning not given.
 Non-gated crossing with one pair of lights designed to flash alternatively, one light does not work (and back-lights from other side not visible).

**Activation failure includes—if more than 50% of the flashing lights on any approach lane not functioning; or if an approach lane has two or more pairs of flashing lights, there is not at least one pair operating as intended.

Issued in Washington, D.C. on May 30, 1996.
 Donald M. Itzkoff,
 Deputy Administrator.
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